Honeywell

MS2321 / MS2322

StratosH® Scanner

Installation and User's Guide

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INTRODUCTION

MANUAL SCOPE

This guide provides information on the installation, setup and operation of the Stratos*H*® MS2321 and MS2322 scanner models. If the MS2321 scanner has been integrated with a scale, please refer to the ***Custom Scale Addendum*** provided for detailed instructions on the appropriate cable connections, communication specifications and calibration procedures required by the scale manufacturer and local Weights and Measures Authorities.

Product manuals are also available for download in Adobe® Acrobat® file format at www.honeywellaidc.com.

PRODUCT OVERVIEW

The Stratos*H* MS2321 and the MS2322 are designed to meet the demanding needs of high volume supermarket and point-of-sale applications. With advanced features like 6-sided, 360° scanning, 5840 scans per second, a comprehensive scan zone and advanced decoding software, these high performance in-counter scanner models guarantee fast customer checkouts with minimal operator fatigue and stress. These Stratos*H* models are equipped with a multitude of standard features including:

- Stratos**SCAN**™ – 6-sided, 360° scanning that minimizes product orientation
- Stratos**SPHERE**™ – Decoding software that reads poor quality and damaged bar codes
- Stratos**SYNC**™ – Horizontal and vertical scanning zones operate independently from one another
- GS1 DataBar Decoding – Decodes GS1 DataBar, GS1 DataBar Limited and GS1 DataBar Expanded symbologies
- Flash ROM – Upgrade latest software enhancements on site
- Powered Aux Port – Connect hand-held scanner for large or bulky items
- Scale Ready Model – The MS2321 model is designed for custom scale integration
- Loud Speaker – Three volume/seven tone settings can be heard in all environments
- Easy Configuration – Windows® based utility or simple bar code setup
- Fully Automatic – “No touch” infrared wake up from power save modes
- EAS Deactivation – Electronic Article Surveillance (EAS) equipped (EAS cable is an optional purchase)
- Field Replaceable Vertical Window – Quickly remove vertical window for cleaning or replacement
- Stratos**SCOPE**™ – Visual diagnostic indicator for easy to read feedback on scanner condition
- Stratos**SWAP**™ – Modular optics engine technology – small, pre-aligned, field replaceable modules
- Stratos**SCHOOL**™ – Operator training software

MODEL NUMBER DESIGNATION

MODEL NUMBER DESIGNATION

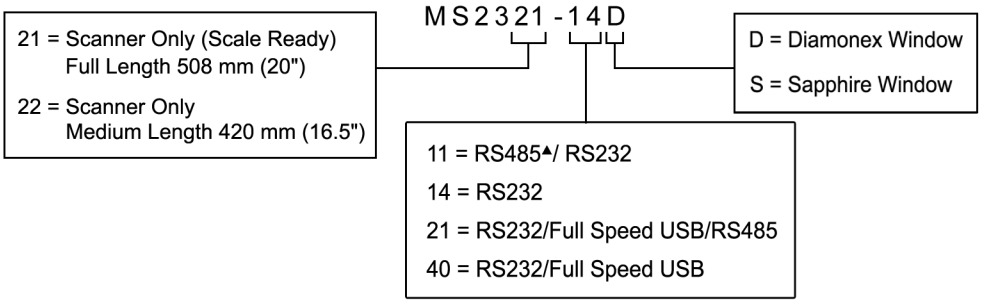

MS2321-14D
21 = Scanner Only (Scale Ready)
Full Length 508 mm (20")
22 = Scanner Only
Medium Length 420 mm (16.5")
D = Diamonex Window
S = Sapphire Window
11 = RS485▲/ RS232
14 = RS232
21 = RS232/Full Speed USB/RS485
40 = RS232/Full Speed USB

Figure 1. Model Number Designation

BASE KIT COMPONENTS

BASE KIT COMPONENTS

Part #	Description
MS2321* / MS2322*	Stratos*H*® Series Scanner
* See model number designation above for detailed information on interface type and window type.	
00-02407*x*	MetroSelect® Configuration Guide
00-02034*x*	MS2*xxx* Stratos Series Configuration Addendum
00-02270*x*	MS2321 / MS2322 Stratos*H* Scanner Installation and User's Guide
Guides also available for download at www.honeywellaidc.com.	

OPTIONAL ACCESSORIES

OPTIONAL ACCESSORIES

Part #	Description
57-57000*x*-N-3	RS232 Interface Cable, Straight Cord
57-57004*x*-N-3	RS485▲ Port 9 Cable, Straight Cord
57-57200*x*-N-3	USB Full Speed Communication Cable, Straight Cord, Locking 12V Plus-Power™ Type A
57-57006*x*-N-3	USB Full Speed Communication Cable, Straight Cord, Non-Locking Type A
57-57099*x*-3	LSO RS232 PowerLink AUX Cable with built in power jack, Straight Cord
57-57099*x*-3-12	RS232 AUX, Straight Cord, 3.7 m (12') (for 95xx, 5145 and 7580 scanners)
CBL-420-300-C00	RS232 AUX, Coiled Cord (for 1200, 1300 and 1900 Series scanners)
52-52511*x*	24" EAS Cable
52-52556	Checkpoint EAS Cable, Straight Cord, 1.8 m (6')

▲ *Applicable for IBM® Host applications.*

OPTIONAL ACCESSORIES	
Part #	**Description**
AC to DC Power Transformer - Regulated Output: +5V @ 4A +12V @ 1.5A	
46-46812	120V United States and Canada
46-46813	220V – 240V Continental European
46-46814	220V – 240V United Kingdom
46-46817	220V – 240V China
46-46928	220V – 240V Australia

Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or customer service department.

REPLACEMENT PARTS

REPLACEMENT PARTS	
Part #	**Description**
⚠ Caution	Window types (Diamonex and Sapphire) are not interchangeable due to laser safety and/or scanner performance differences. To change window type, the scanner must be returned to the manufacturer for reconfiguration.
46-46889	Vertical Window
46-46806	Diamonex Platter – Full (Long) Size
46-46807	Diamonex Platter – Compact (Medium) Size
46-46808	Sapphire Platter – Full (Long) Size
46-46809	Sapphire Platter – Compact (Medium) Size
Other items may be ordered for the specific protocol being used. To order additional items, contact the dealer, distributor or customer service department .	

GENERAL PRECAUTIONS

The following list includes general precautions to remember when handling the Stratos*H*.

DO NOT TURN the unit upside down with the platter in place.

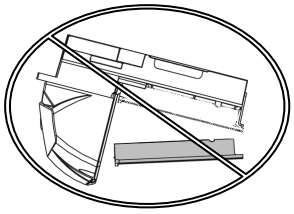


Figure 4

DO NOT PRESS on the window in the placement platter or the vertical window frame.

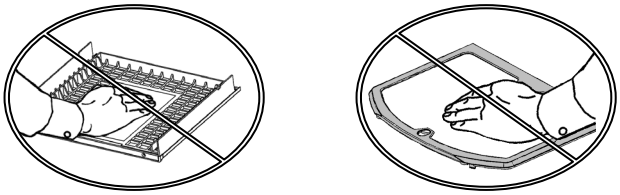


Figure 2

PLATTER REMOVAL
No hardware or tools are required to remove the platter / horizontal scan window (see Figure 3). Refer to the Maintenance section of this manual for additional information on platter replacement.

⚠ *See caution statement on page 3.*

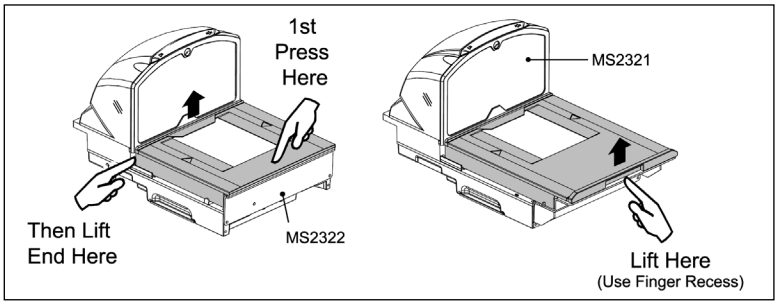


Figure 3

LIFT HANDLES
REST both thumbs against the vertical window frame for added stability when lifting the unit by the handles provided.

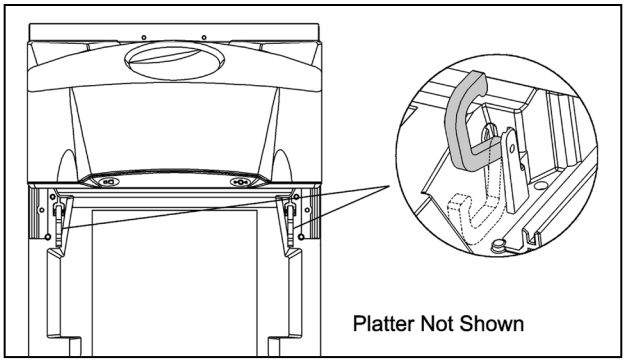


Figure 5

MS2321 / MS2322 SCANNER DESIGN SPECIFICATIONS

	Design Specifications		
Operational			
Light Source:	VLD 650 nm		
Peak Laser Power:	<2.2 mW		
Maximum IR LED Output:	50μW per IEC 60825-1 measurement procedure		
Horizontal Depth of Field:	0 mm - 152 mm (0"- 6") for 0.33 mm (13 mil) Bar Code		
Vertical Depth of Field:	0 mm - 216 mm (0"- 8.5") for 0.33 mm (13 mil) Bar Code		
Scan Speed:	5840 Scan Lines per Second		
No. of Scan Lines:	66 (38 Horizontal / 28 Vertical)		
Motor Speed:	4800 / 6000 RPM (Horizontal / Vertical)		
Min Bar Width:	0.152 mm (6.0 mil)		
Decode Capability:	All Standard 1-D Bar Codes, GS1 DataBar, GS1 DataBar Expanded, and GS1 DataBar Limited Bar Codes		
System Interfaces:	RS232, Aux RS232, RS485 and USB		
Print Contrast:	35% Minimum Reflectance Difference		
No. Characters Read:	Up to 80 data characters. Maximum number will vary based on symbology and density.		
Beeper Operation:	7 Tones or No Beep; 3 Volume Settings		
Indicators (LED):	Blue	Laser ON, Ready to Scan	
	White	Good Read, Decoding	
Mechanical			
MS2321 L x W x H:	508 mm (20") Length	290 mm (11.4") Width	181 mm (7.1") Tower Height
MS2322 L x W x H:	420 mm (16.5") Length	292 mm (11.5") Width Counter	181 mm (7.1") Tower Height
Depth (Below Counter):	100 mm (3.9"), All Models		
Weight (with Platter):	MS2321, 7.48 kg (16.45 lbs.)	MS2322, 6.93 kg (15.25 lbs.)	
Electrical			
Voltage Supply:	4A @ +5V / 1.5A @ +12V		
Power:	Operating, 14.25 Watts	Standby, 3.25 Watts	
Current:	Operating, 1A @ 5V / 0.75A @ 12V	Standby, 0.44 A @ 5V / 0.08A @ 12V	
DC Transformers:	Class II; 5.2VDC @ 3.8A; 12VDC @ 1.5A		
Current Limits on Integrated Scale and/or Scale Display:	Do not exceed maximum current of 12V @ 0.2A / 5V@ 0.3A		
For Regulatory Compliance Information refer to pages 46 - 48.			
Environmental			
Operating Temperature:	0°C to 40°C (32°F to 104°F)		
IP Rating:	IP 55		
Light Levels:	4842 Lux (450 footcandles)		
Storage Temperature:	-40°C to 60°C (-40°F to 140°F)		
Humidity:	5% to 95% Relative Humidity, Non-Condensing		
Contaminants:	Sealed to resist airborne particulate contaminants.		
Ventilation:	None Required		

Specifications are subject to change without notice.

MS2321 Scanner

Components

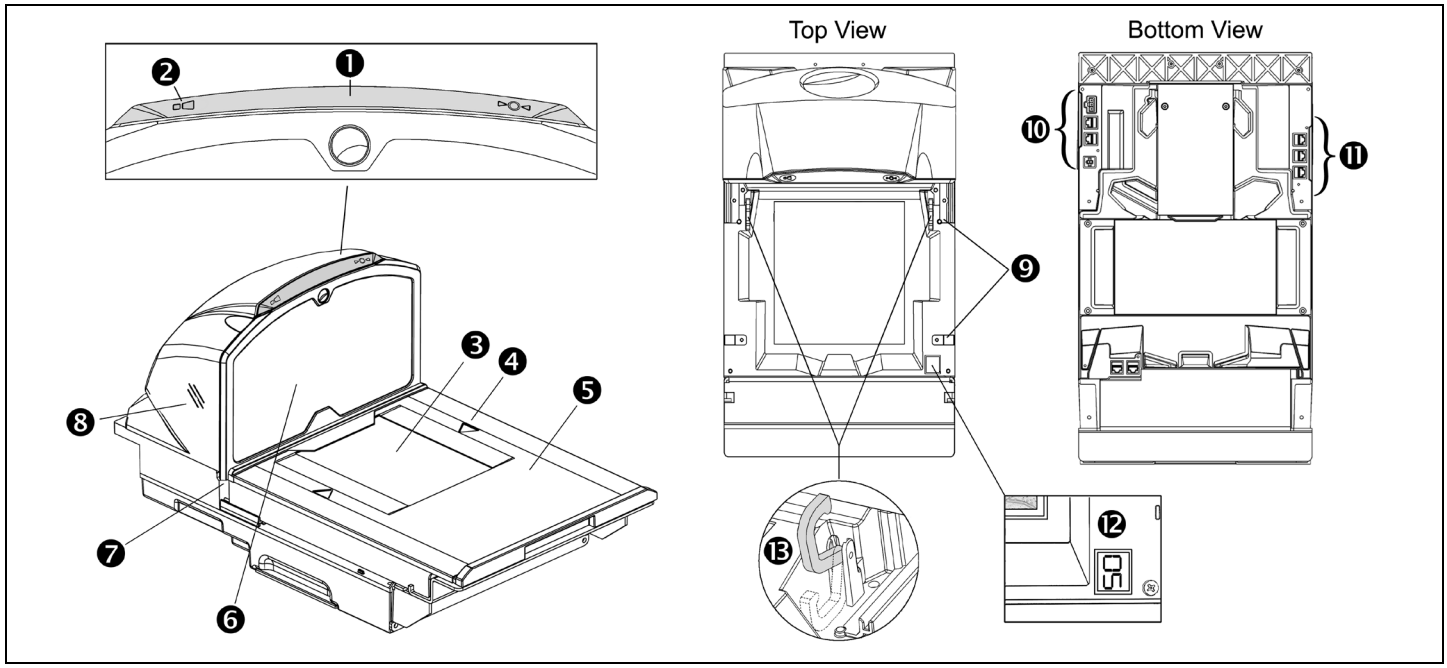


Figure 6. MS2321 Components

Components

ITEM NO.	DESCRIPTION OF ITEM
1	Blue and White LED Indicators *(see page 30)*
2	Volume/Tone Multi-Function Button *(see page 35)*
3	Diamonex or Sapphire Horizontal Window (Laser Aperture)
4	Flow Direction Indicators
5	Replaceable Stainless Steel Platter
6	High Impact Window Frame / Vertical Window (Laser Aperture)
7	Debris Channel
8	Speaker *(see page 30)*
9	Platter Support Bumpers *(see page 37)*
10	Power and EAS Connectors *(see page 7)*
11	Interface and Aux Scanner Connectors *(see page 7)*
12	Diagnostic Indicator Display *(see page 32 for Error Codes)*
13	Handles for Lifting Unit
	Scanner label information can be found on page 8.

MS2321 Scanner

Dimensions

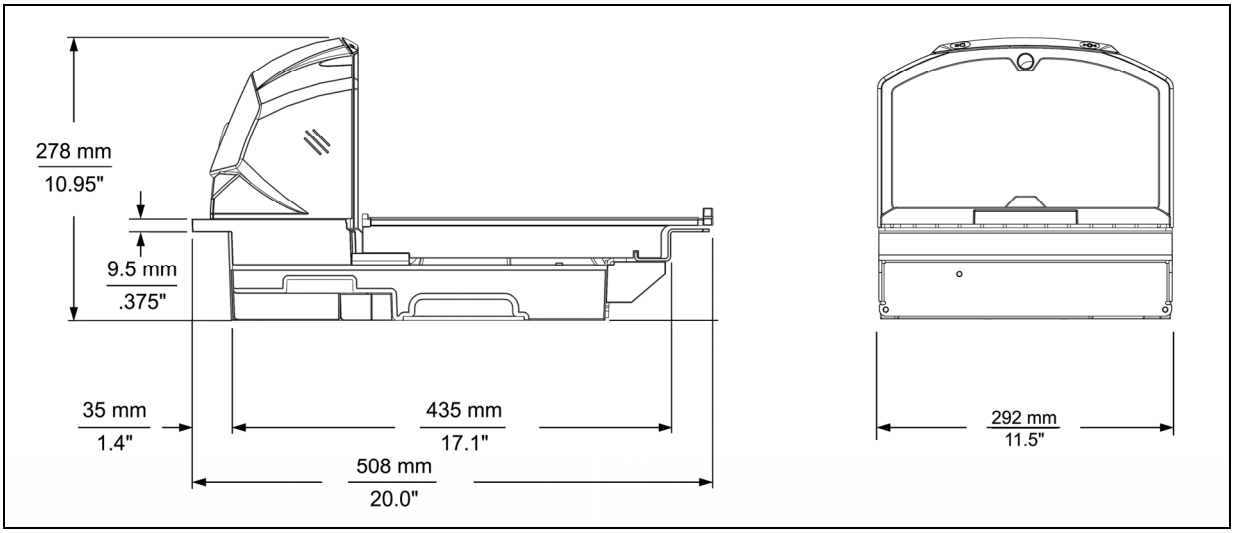


Figure 7. MS2321 Dimensions

Connector Panel

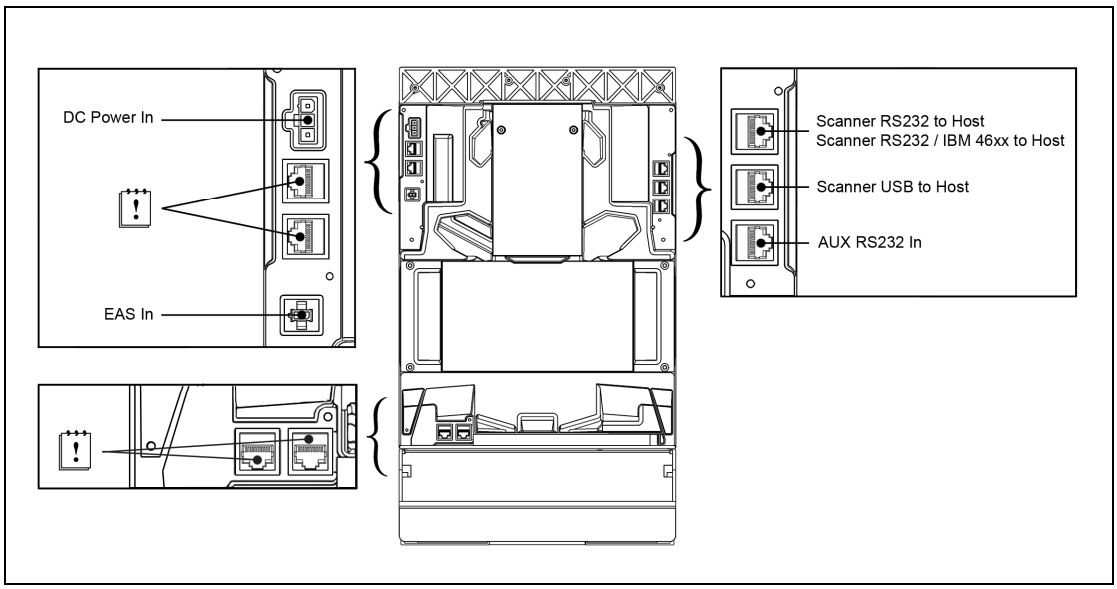


Figure 8. MS2321 Connector Panel

Scale ready MS2321 models supply additional connectors for scale and display communication cabling. The use of these connections is dependent on the specific manufacturer of the scale being integrated. Please refer to the ***Custom Scale Addendum*** for detailed instructions on the appropriate cable hookups and calibration procedures for local Weights and Measures authorities.

Specifications are subject to change without notice.

MS2321 Scanner

Caution and Serial Number Labels

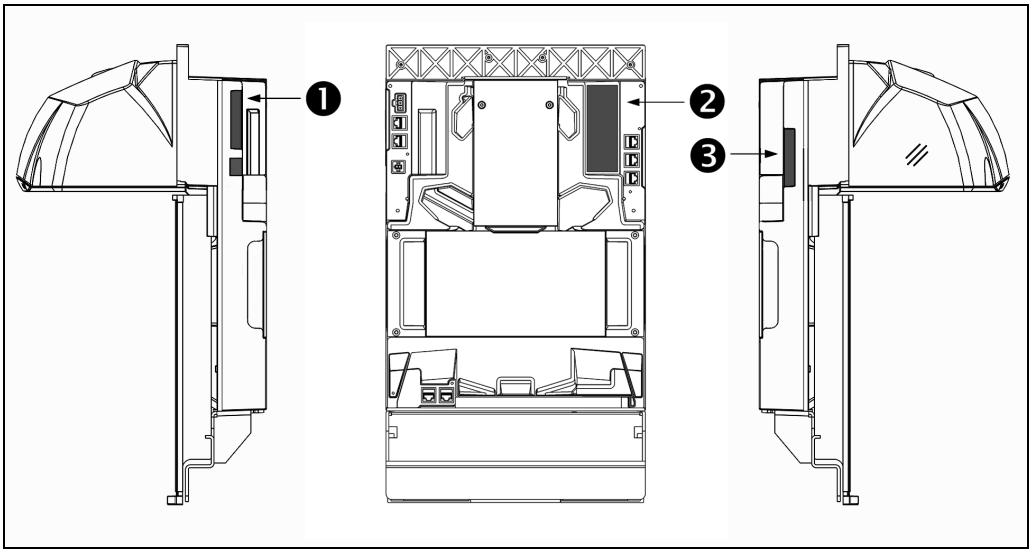


Figure 9. MS2321 Label Locations (Top) and Examples (Bottom)

1

EAS In	N/C	N/C	DC Power In

2

Honeywell International Inc.
Manufactured by Metro (Suzhou) Technologies Co., Ltd.
Contains no user servicable components. Warranty void if case is opened. Complies with FCC and ICES-003 Class A.
See manual.
Made in Suzhou China March 2011 (G)
Model: MS2321-14D 232
Stratos*H*™ Barcode Scanner
83 11 45 0001
See User's Guide for patent coverage.

This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50 dated July 26, 2001.
5V, 12V ⎓
CAUTION:
Laser light when opened.
DO NOT STARE INTO BEAM.
c UL us LISTED 94J8 I.T.E.

3

Scanner RS232 to Host	N/C	Aux RS232 In	On the MS2321-14 Model
Scanner RS232 / IBM 46XX to Host	N/C	Aux RS232 In	On the MS2321-11 Model
Scanner RS232 / IBM 46XX to Host	FS USB to Host	Aux RS232 In	On the MS2321-21 Model
Scanner RS232 to Host	Scanner USB to Host	Aux RS232 In	On the MS2321-40 Model

Caution: To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN/IEC 60950-1.

To maintain compliance with standard CSA C22.2 No. 60950-1/UL 60950-1 and norm EN/IEC 60950-1, the power source should meet applicable performance requirements for a limited power source.

MS2322 Scanner

Components

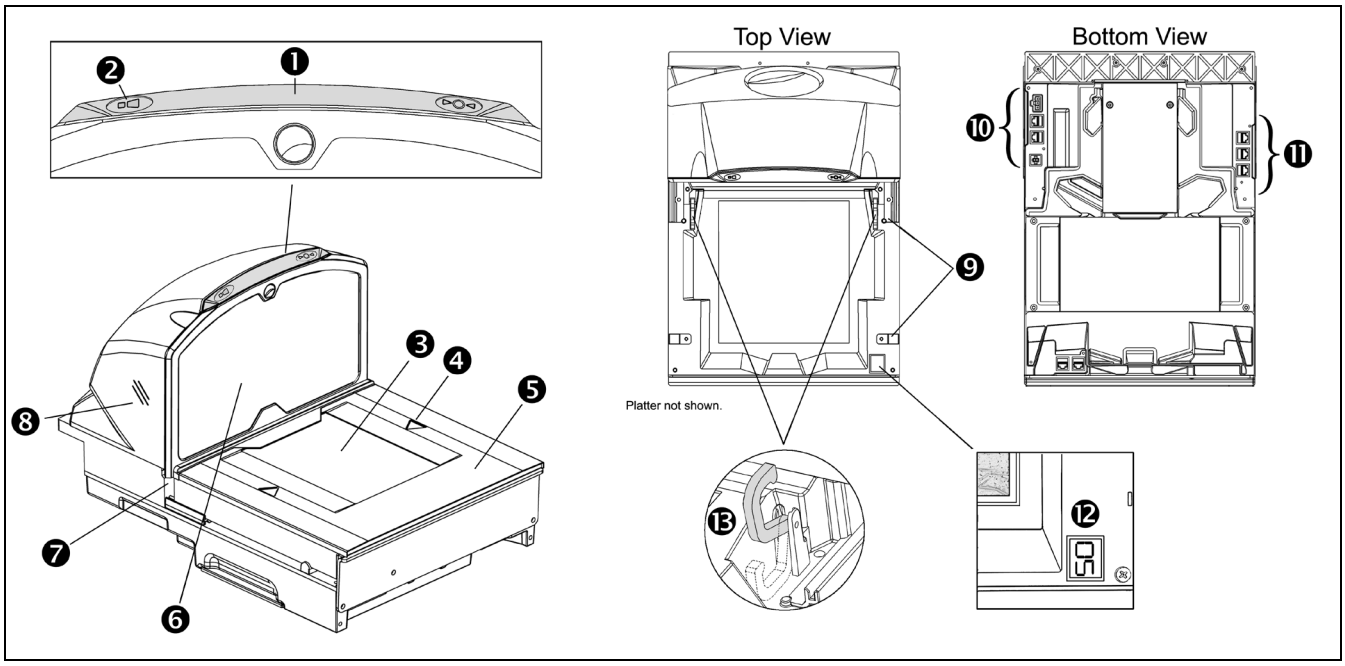


Figure 10. MS2322 Components

Components

ITEM NO.	DESCRIPTION OF ITEM
1	Blue and White LED Indicators *(see page 30)*
2	Volume/Tone Multi-Function Button *(see page 35)*
3	Diamonex or Sapphire Horizontal Window (Laser Aperture)
4	Flow Direction Indicator
5	Replaceable Stainless Steel Platter
6	High Impact Window Frame / Vertical Window (Laser Aperture)
7	Debris Channel
8	Speaker *(see page 30)*
9	Platter Support Bumpers *(see page 37)*
10	Power and EAS Connectors *(see page 10)*
11	Interface and Aux Scanner Connectors*(see page 10)*
12	Diagnostic Indicator Display *(see page 32)*
13	Handles for Lifting Unit
	Scanner label information can be found on page 11.

MS2322 Scanner

Dimensions

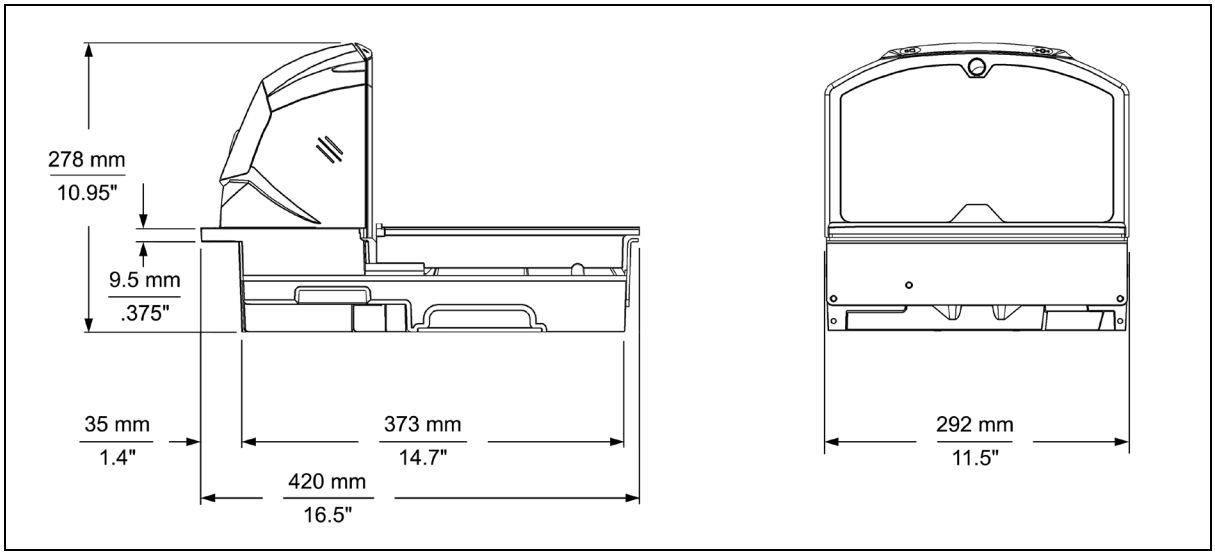


Figure 11. MS2322 Dimensions

Connector Panel

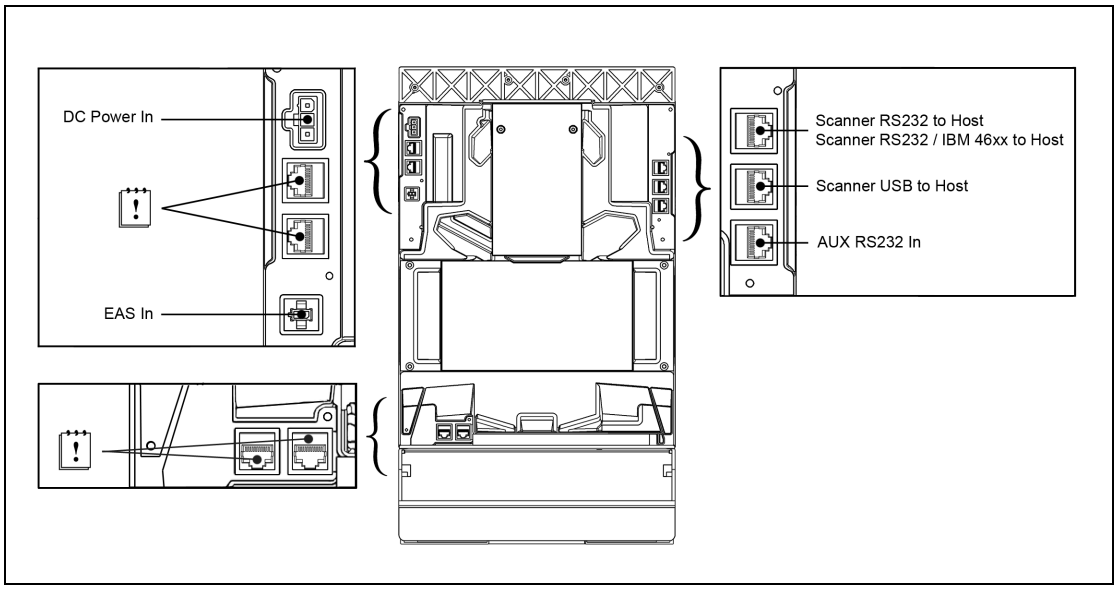


Figure 12. MS2322 Connectors

Specifications are subject to change without notice.

MS2322 Scanner

Caution and Serial Number Labels

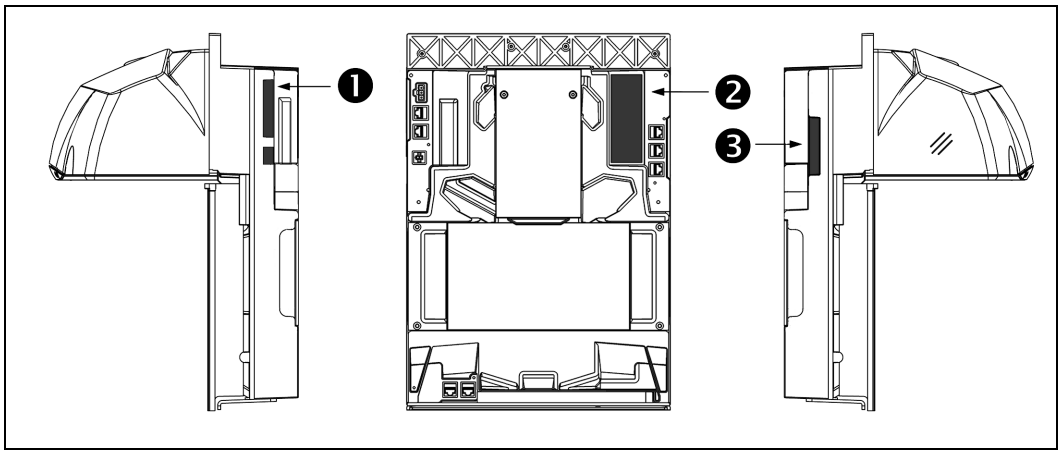


Figure 13. MS2322 Label Locations (Top) and Examples (Bottom)

❶

EAS In	N/C	N/C	DC Power In

❷

Honeywell International Inc.
Manufactured by Metro (Suzhou) Technologies Co., Ltd.
Contains no user servicable components. Warranty void if case is opened. Complies with FCC and ICES-003 Class A.
See manual.
Made in Suzhou China March 2011 (G)
Model: MS2322-14D 232
Stratos*H*™ Barcode Scanner
83 11 45 0002
See User's Guide for patent coverage.

This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50 dated July 26, 2001.
5V, 12V ⎓
CAUTION:
Laser light when opened.
DO NOT STARE INTO BEAM.
c UL us LISTED 94J8 I.T.E.
CE

❸

Scanner RS232 to Host	N/C	Aux RS232 In	On the MS2322-14 Model
Scanner RS232 / IBM 46XX to Host	N/C	Aux RS232 In	On the MS2322-11 Model
Scanner RS232 / IBM 46XX to Host	FS USB to Host	Aux RS232 In	On the MS2322-21 Model
Scanner RS232 to Host	Scanner USB to Host	Aux RS232 In	On the MS2322-40 Model

Caution: To maintain compliance with applicable standards, all circuits connected to the scanner must meet the requirements for SELV (Safety Extra Low Voltage) according to EN/IEC 60950-1.

To maintain compliance with standard CSA C22.2 No. 60950-1/UL 60950-1 and norm EN/IEC 60950-1, the power source should meet applicable performance requirements for a limited power source.

QUICK INSTALLATION OUTLINE

The following is a quick preview of the steps required for first time installations. Each item is discussed in detail later in this section.

- Determine clearance, ventilation and service access requirements.
- Determine checkout counter layout taking into account package flow, cable routing and power requirements.
- Choose the mounting option which provides the best cable/power access and unit stability.
- Unpack the unit.
- Make the appropriate countertop cutouts and install all support brackets.
- Place the unit in the counter.
- Install the platter.
- Follow the steps under the correct interface to connect the cables and power supply.
- Configure the unit for the correct interface.

SITE REQUIREMENTS

Before installing your Stratos*H* scanner, please consider the following items.

Vertical Clearance

A minimum clearance height of 7.00" from the checkout counter surface is needed for the vertical 'hood' on all of the scanner models.

Ventilation and Spacing

All Stratos*H* models have a die-cast housing to dissipate heat allowing the unit to operate without a ventilation fan. Honeywell recommends that the temperature surrounding the unit does not exceed 40°C (104°F). There should be adequate convection and minimal heat producing equipment in close proximity of the unit. A cooling fan with a filter is recommended if there will be a conveyor motor or other heat producing equipment close to the unit that will create a high temperature environment.

Service Access

When routing and installing the cable(s) and power supply, make sure you leave access so that these components may be swapped easily without the need to remove the unit from the checkout counter.

When changing the Stratos**SWAP**™ optics engine modules, Honeywell recommends removing the unit completely from the checkout counter.

Power Installation

The Power Supply (AC/DC) should be connected to an AC Outlet that is free of electrical noise (clean). A qualified electrician can determine the amount of electrical noise on the AC line. See additional information on power installation and restrictions under the *Installation: Cable Installation (Interface Specific)* section of this manual.

Honeywell recommends using a switched AC outlet. The switch should be located on the operator's side of the checkout counter in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

Checkout Counter Layout Considerations

When placing a scanner in a checkout counter, the following factors should be considered.

- Items should flow at a distance to the operator that maximizes comfort. The operator should not need to stretch or strain to reach for and scan packages.

- The Stratos*H* can scan a bar code on six sides of a package. The packages should flow into the scan area that provides the maximum reading performance. No lifting or orientation of the items is necessary. A properly placed item diverter can maximize the flow of packages.

- In what direction are the packages flowing? Most checkout counters are designed for left-handed takeaway. If the operator is facing the vertical window of the scanner, packages flow from the operator's right to left. The packages are in queue on the conveyor to the right and the bagging is to the left.

UNPACKING THE UNIT

1. Make sure the shipping box is top-side up before opening.

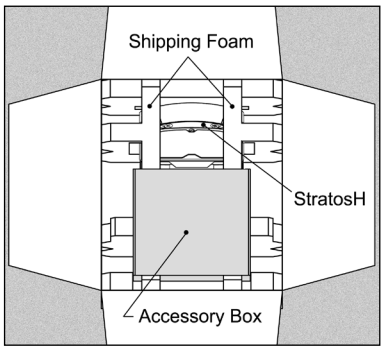


Figure 14

2. Remove the accessories box and check the box's content for the following items:
   - Product Manuals
   - Power Supply
   - Communication Cables

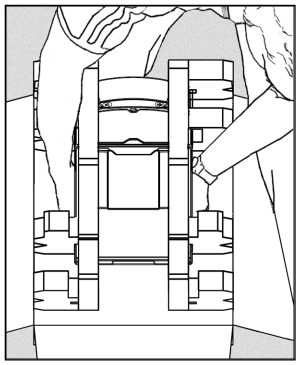


Figure 15

3. Lift the scanner out of the shipping box by gripping the **bottom** of the unit on both sides.

   Important! **Do not** lift the unit out of the box by gripping the sides of the platter.

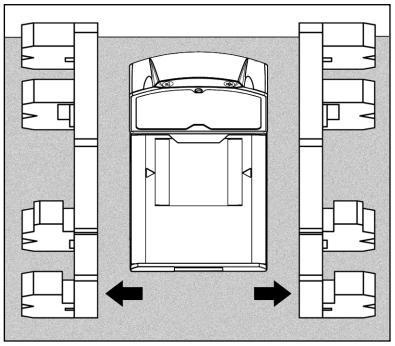


Figure 16

4. Carefully remove the shipping foam around the unit.

   Important! **Do not** turn the unit upside down or tilt the unit onto its side while removing the shipping foam. The platter is not attached to the unit and can fall off!

5. Lift the platter off the unit and store it in a safe location until the unit is installed in the checkout counter.

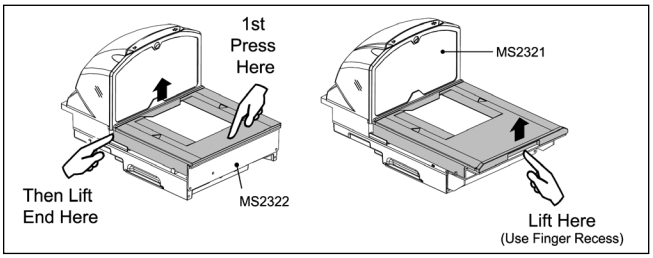


Figure 17

INSTALLING THE UNIT IN THE COUNTER

MS2321 Mounting Diagram (Two Point Support)

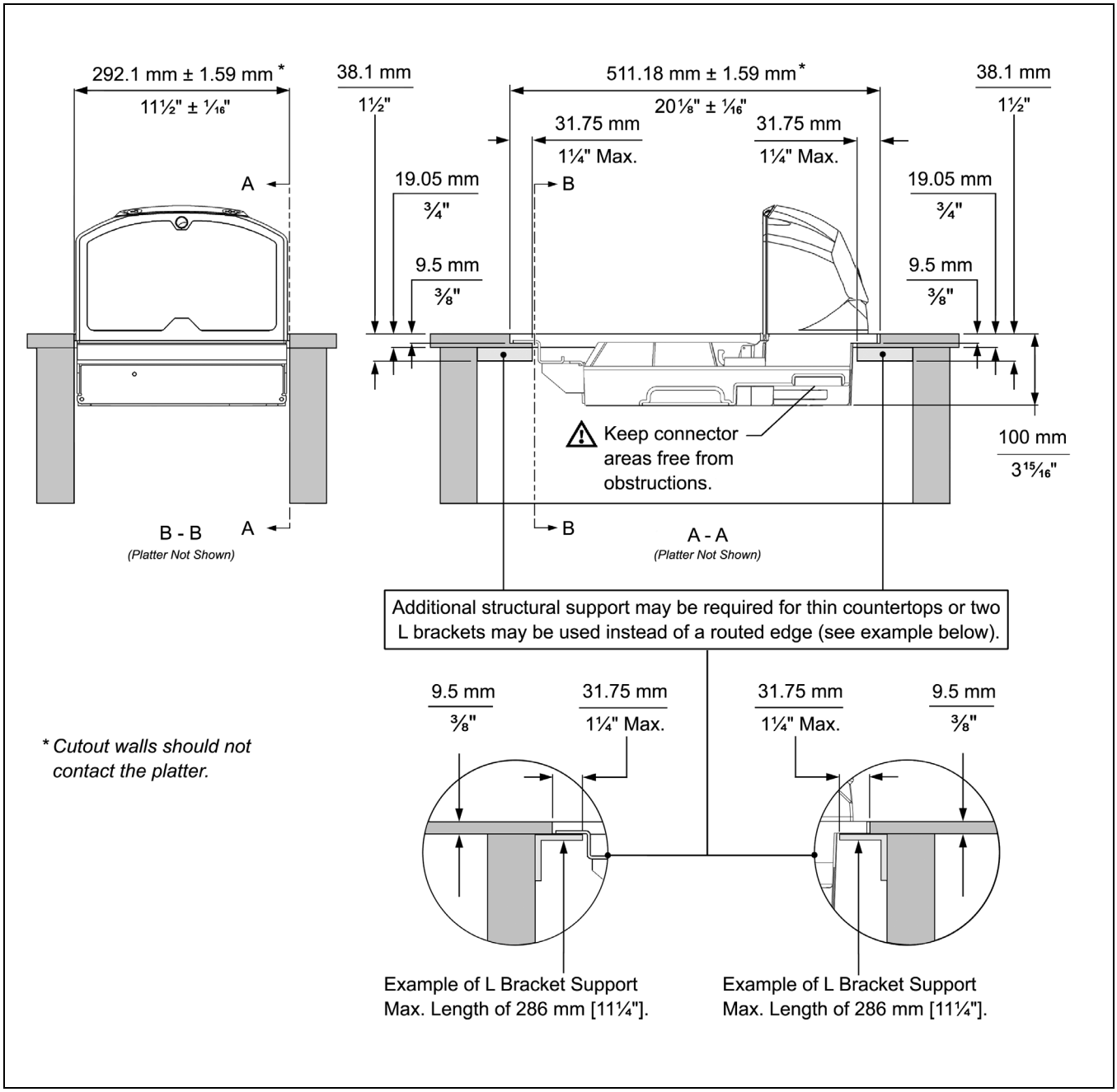


Figure 18. MS2321 Mounting Diagram, Two Point Support

Specifications are subject to change without notice.

INSTALLING THE UNIT IN THE COUNTER

MS2321 Mounting Diagram (Three Point Support)

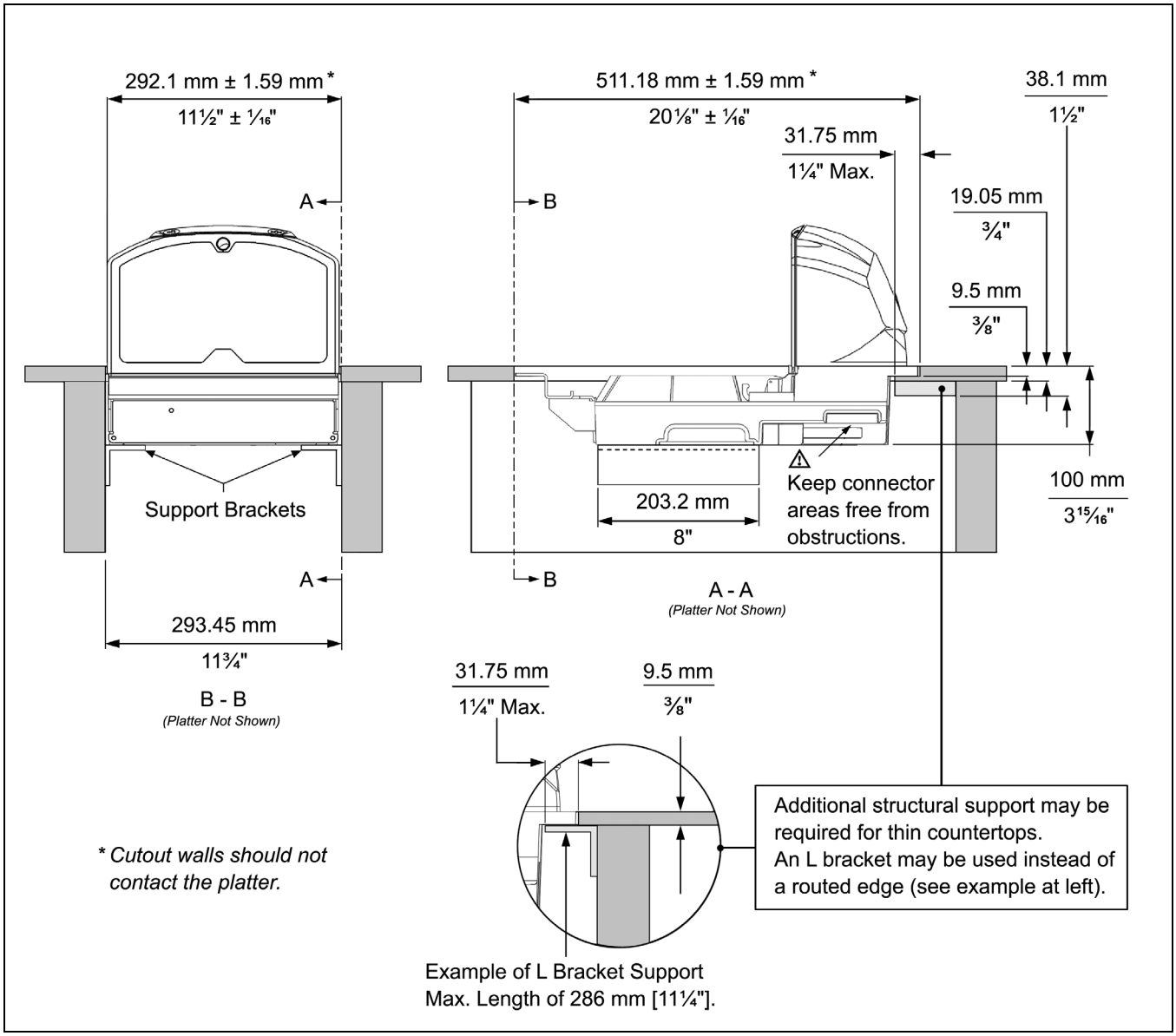


Figure 19. MS2321 Mounting Diagram, Three Point Support

Specifications are subject to change without notice.

INSTALLING THE UNIT IN THE COUNTER

MS2322 Mounting Diagram (Two Point Support)

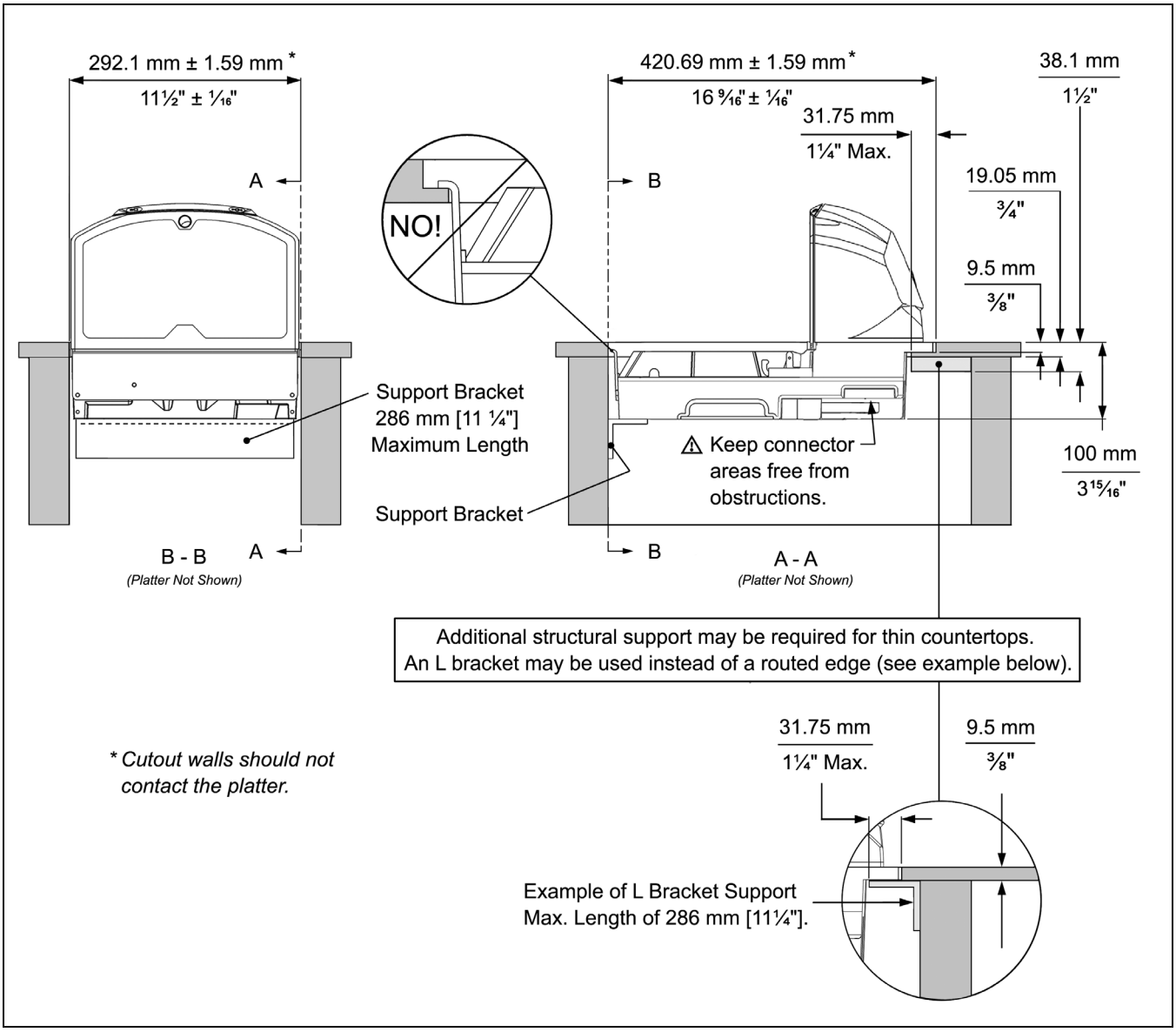


Figure 20. MS2322 Mounting Diagram, Two Point Support

INSTALLING THE UNIT IN THE COUNTER

MS2322 Mounting Diagram (Three Point Support)

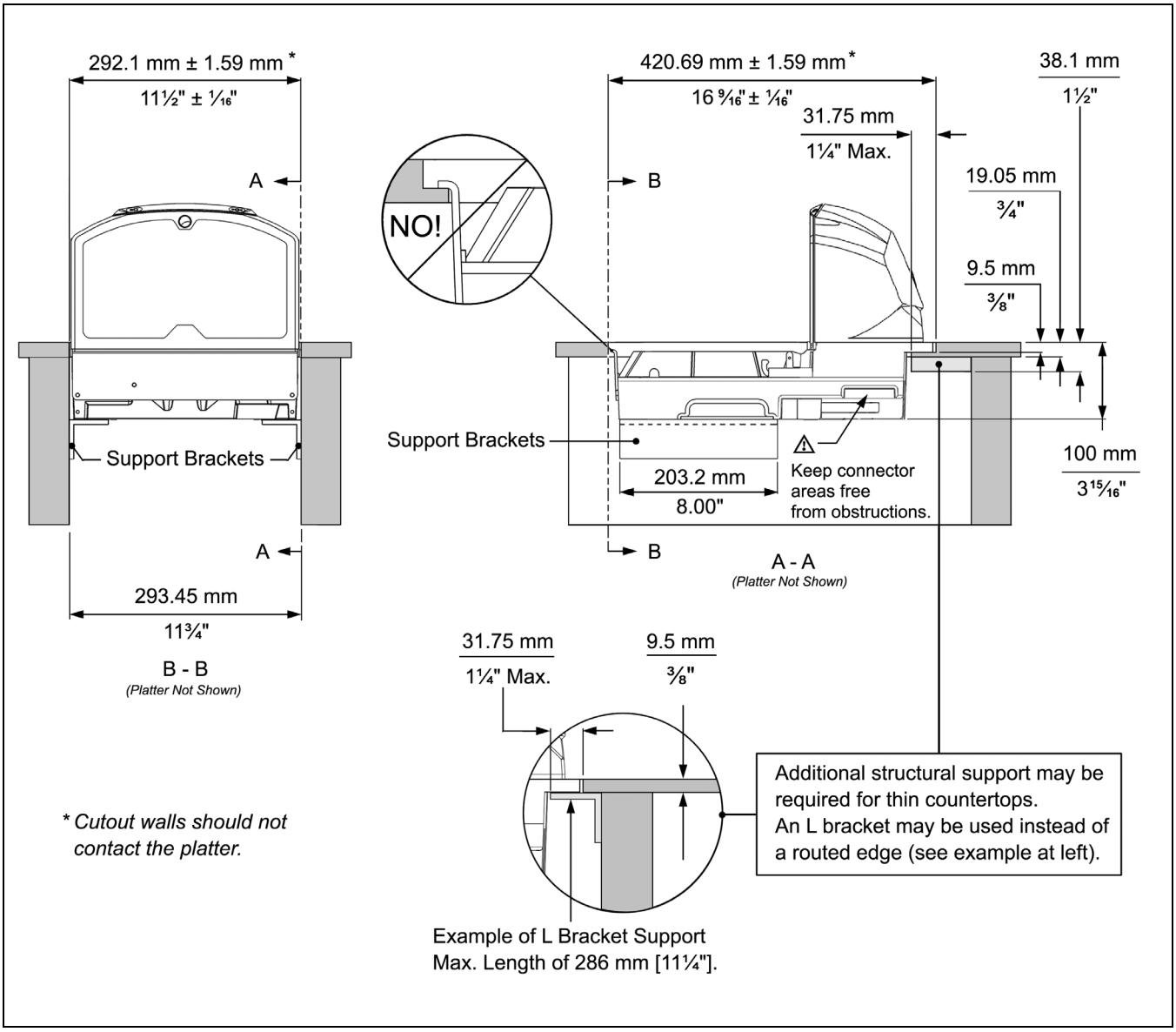


Figure 21. MS2322 Mounting Diagram, Three Point Support

Specifications are subject to change without notice.

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS232

The following steps describe how to properly install the cables for an RS232 Stratos*H* application. The scanner **must** then be configured to match the host's RS232 parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.

> Configuration bar codes are located in the MetroSelect Configuration Guide (PN 00-02407x) and the MS2xxx Stratos Series Configuration Addendum (PN 00-02034x).

1. Turn off the host system.

2. Plug the 10-pin RJ45 end of the RS232 interface cable (PN 57-57000x-N-3) into the 10-pin socket labeled, ***Scanner RS232 to Host***, on the bottom of the Stratos*H*. Refer to figure on page 19.

3. Connect the other end of the RS232 cable to the proper communication port on the host device.

   > Before continuing, verify that the RS232 interface cable is connected to the appropriate interface socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.

4. Plug the external power supply (PN 46-46xxx) into the 3-pin Molex socket labeled, ***DC Power In***, on the bottom of the Stratos*H*.

   xxx* Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

   > Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

   > Honeywell recommends using a switched AC outlet. The switch should be located on the operator's side of the checkout counter in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

5. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.

6. Turn on the host system.

7. Scan the ***Recall Defaults*** bar code.

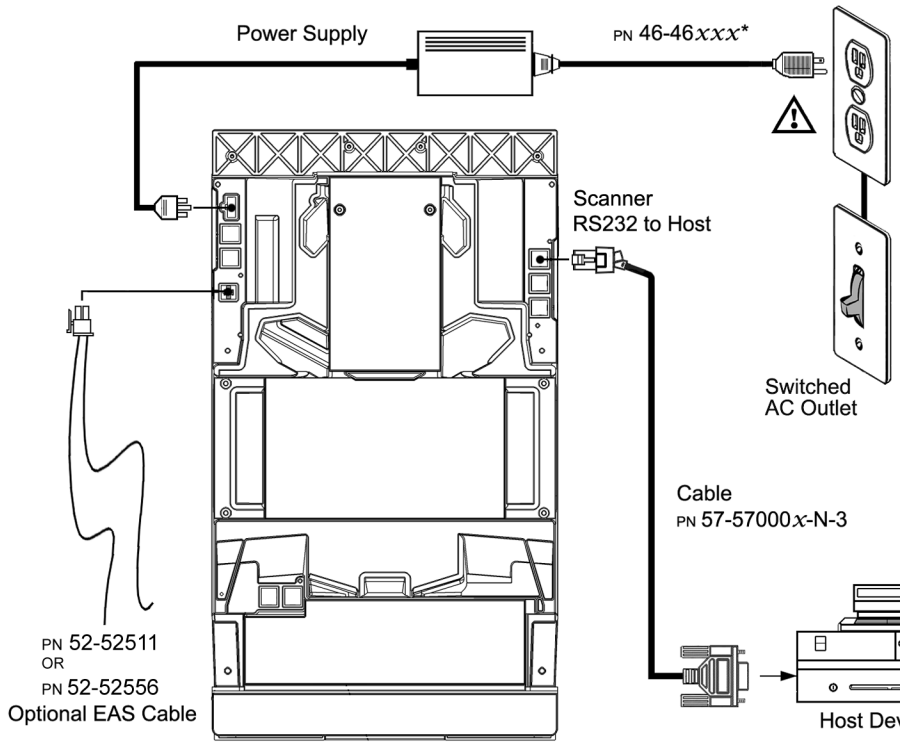
   > The *Recall Defaults* bar code is located in the MetroSelect Configuration Guide (PN 00-02407x), under *Need to Start Over*.

8. Configure the Stratos*H* to match the host system's RS232 parameters.

   > Refer to the MetroSelect Configuration Guide (PN 00-02407x) under *Section G: RS232* for ***Enabling RS232 Mode*** (scan the *recall defaults* bar code first).

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS232



*xxx** Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

See power source caution statement on page 11 of this manual.

Figure 22. RS232 Interface Cable Installation Schematic

CABLE INSTALLATION (INTERFACE SPECIFIC)

FULL SPEED USB

The following steps describe how to properly install the cables for a Full Speed USB Stratos*H* application. The scanner **must** then be configured to match the host's USB parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.

> Configuration bar codes are located in the MetroSelect Configuration Guide (PN 00-02407*x*) and the MS2*xxx* Stratos Series Configuration Addendum (PN 00-02034*x*).

1. Turn off the host system.

2. Plug the 10-pin RJ45 end of the USB interface cable (PN 57-57200*x*-N-3 or 57-57006*x*-N-3) into the 10-pin socket labeled, ***Scanner USB to Host***, on the bottom of the Stratos*H*. Refer to Figure on page 21.

3. Connect the other end of the USB interface cable to the appropriate USB port on the host device.

   > STOP Before continuing verify that the USB interface cable is connected to the appropriate socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.

   > Manufacturers Note: Plugging the scanner into the USB port of the host does not guarantee that scanned information will appear at the host. A software driver and correct configuration setting are also required for proper communication to occur. When using the RS232/Full Speed USB/RS485 (-121) interface, the USB and RS485 interfaces are not active at the same time.

4. Plug the external power supply (PN 46-46*xxx*) into the 3-pin Molex socket labeled, ***DC Power In***, on the bottom of the Stratos*H*.

   *xxx** Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

   > Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

   > Honeywell recommends using a switched AC outlet. The switch should be located on the operator's side of the checkout counter in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

5. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.

6. Turn on the host system.

7. Configure the Stratos*H* to match the host system's USB parameters.

   > The ***IBM OEM Full Speed USB Communication Defaults**** bar code is located in the *MS2xxx Stratos Series Configuration Addendum (PN 00-02034x)* under Scanner Configuration Bar Codes: Dual Cable Scanner Configuration Bar Codes, IBM OEM Full Speed USB Communication Defaults and IBM OEM Full Speed USB Protocols.

** For scanner only Stratos*H* models. If a scale has been integrated into a scale ready MS2321, the configuration bar code shown does not apply.

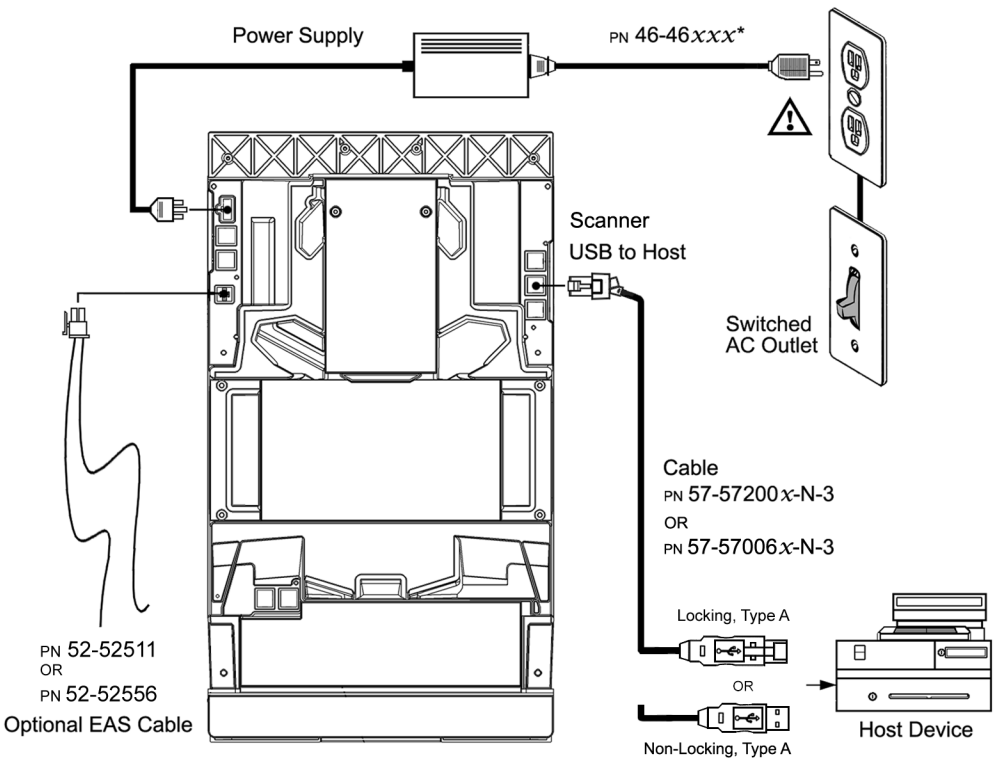
CABLE INSTALLATION (INTERFACE SPECIFIC)

FULL SPEED USB

Step 8 is for USB Serial Emulation Mode or Keyboard Emulation Mode only.

8. Configure the Stratos*H* for **Bi-Directional USB Serial Emulation Mode** or **USB Keyboard Emulation Mode** by scanning the appropriate configuration bar codes in the USB section of the *MetroSelect Configuration Guide (PN 00-02407x)*.

Step 7 must be completed before continuing to step 8 for these features to work properly.



*xxx** Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

See power source caution statement on page 11 of this manual.

Figure 23. USB Cable Installation Schematic

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS485

The following steps describe how to properly install the cables for an RS485 Stratos*H* application. The scanner **must** then be configured to match the host's RS485 parameters. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system.

> Configuration bar codes are located in the MetroSelect Configuration Guide (PN 00-02407*x*) and the MS2*xxx* Stratos Series Configuration Addendum (PN 00-02034*x*).

1. Turn off the host system.

2. Plug the 10-pin RJ45 end of the RS485 interface cable (PN 57-57004*x*-N-3) into the 10-pin socket labeled, ***Scanner RS232 / IBM 46xx to Host***, on the bottom of the Stratos*H*. Refer to Figure on page 23.

3. Connect the other end of the RS485 cable to communication port 9 on the host device.

   > STOP Before continuing verify that the RS485 cable is connected to the appropriate interface socket on the scanner. An incorrect cable connection can cause communication problems or potential damage to the scanner and/or terminal.

   > *Manufacturers Note:* Plugging the scanner into the serial port of the host device does not guarantee that scanned information will appear at the host device. A software driver and correct configuration settings are also required for proper communication to occur. When using the RS232/Full Speed USB/RS485 (-121) interface, the USB and RS485 interfaces are not active at the same time.

4. Plug the external power supply (PN 46-46*xxx**) into the 3-pin Molex socket labeled, ***DC Power In***, on the bottom of the Stratos*H*.

   *xxx** Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

   > Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

   > Honeywell recommends using a switched AC outlet. The switch should be located on the operator's side of the checkout counter in close proximity to the Stratos*H* to facilitate calibration and service of the unit.

5. Connect AC power to the transformer. If the AC outlet is equipped with an on/off switch, turn the power on.

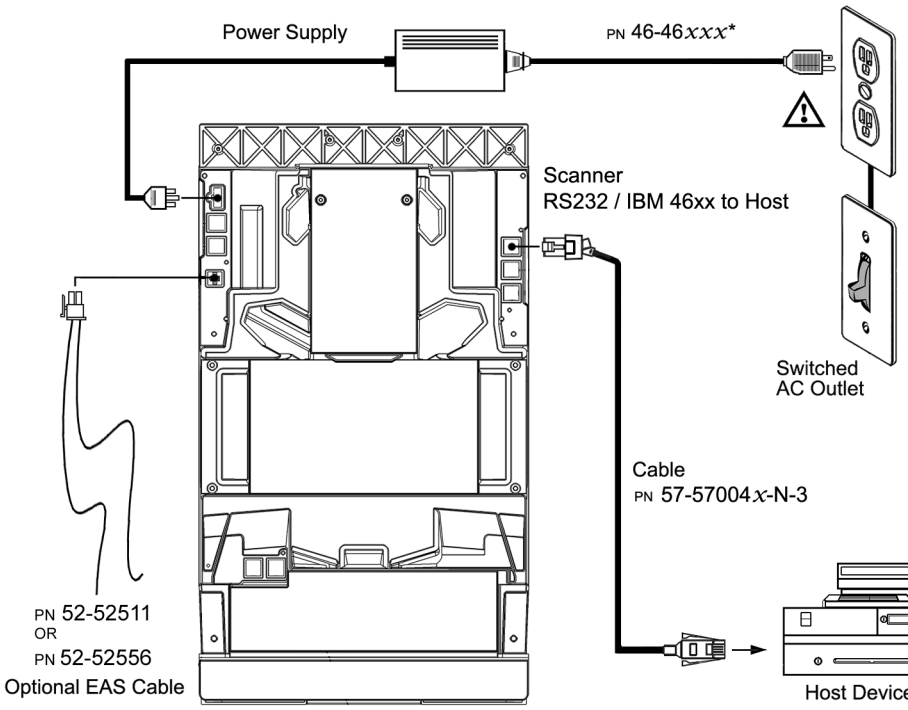
6. Turn on the host system.

7. Configure the Stratos*H* to match the host system's RS485▲ parameters.

   > Refer to the MS2*xxx* Stratos Series Configuration Addendum (PN 00-02034*x*) under *Scanner Configuration Bar Codes:* ***IBM 3rd Generation Communication Defaults*** **and** ***IBM 3rd Generation Protocols****.*
   >
   > Additional general configuration bar codes can be found in the MetroSelect Configuration Guide (PN 00-02407*x*).

CABLE INSTALLATION (INTERFACE SPECIFIC)

RS485



*xxx** Specifies international connection. See *Optional Accessories* in the *Introduction* section of this guide for a complete listing.

See power source caution statement on page 11 of this manual.

Figure 24. RS485 Cable Installation Schematic

CABLE INSTALLATION (SECONDARY HONEYWELL SCANNER)

The following steps describe how to properly install the cables between a secondary *Honeywell* scanner and the Stratos*H*. The Stratos*H* and the secondary scanner **must** then be configured to communicate properly. Cable installation alone **does not** guarantee that the Stratos*H* will communicate properly with the host system and secondary scanner.

> Contact a customer service representative **before** connecting another manufacturer's scanner to the Stratos*H* as a secondary scanner.

> Configuration bar codes are located in the MS2xxx Stratos Series Configuration Addendum (PN 00-02034x) under *Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Honeywell Scanner*.

1. Refer to pages 18 - 22 for the type of interface *(RS232, RS485, etc.)* required for your application. Follow the cable installation steps under the appropriate interface before continuing. Once the communication and power cables have been installed, follow step 2 below for the secondary scanner installation.

2. Connect the **straight** end of the RS232 PowerLink AUX cable (PN 57-57099x-3 or PN 57-57099x-3-12) to the RS232 into the socket of the **secondary** scanner (*see figure on page 25*).

3. Connect the **angled** end of the RS232 AUX cable (PN 57-57099x-3 or PN 57-57099x-3-12) into the 10-pin socket labeled, ***Aux RS232 In***, on the bottom of the Stratos*H.*

   Important: The StratosH series' aux port requires the signals; transmit, receive, RTS & CTS from the secondary scanner.

> For Rev G units or later: The Stratos*H*'s auxiliary port will support 5VDC devices with a 700mA maximum current.
>
> For Rev F units or earlier: The Stratos*H*'s auxiliary port will support 5VDC devices with a 150mA maximum current. If the auxiliary device exceeds this specification or requires a different voltage, an external power supply will be required to power the auxiliary device. The following Honeywell scanners can receive power from Stratos*H*: the MS9520, MS9540, and the MS5145.

4. **This step is required for secondary devices that require >5VDC and/or 700mA current to operate.** Skip to step 5 if the secondary device requires ≤ 700mA 5VDC.

   Plug the power supply into the **secondary** scanner's PowerLink cable (PN 57-57099x-3 or PN 57-57099x-3-12) and connect AC power to the secondary scanner.

   > Check the AC input requirements of the power supply to make sure the voltage matches the AC outlet. The outlet should be located near the equipment and be easily accessible.

5. Configure the Stratos*H* and the secondary scanner. The auxiliary input port's data format must match the main output format of the secondary scanner.

   > Refer to the MS2xxx Stratos Series Configuration Addendum (PN 00-02034x) under *Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Honeywell Scanner*.

CABLE INSTALLATION (SECONDARY HONEYWELL SCANNER)

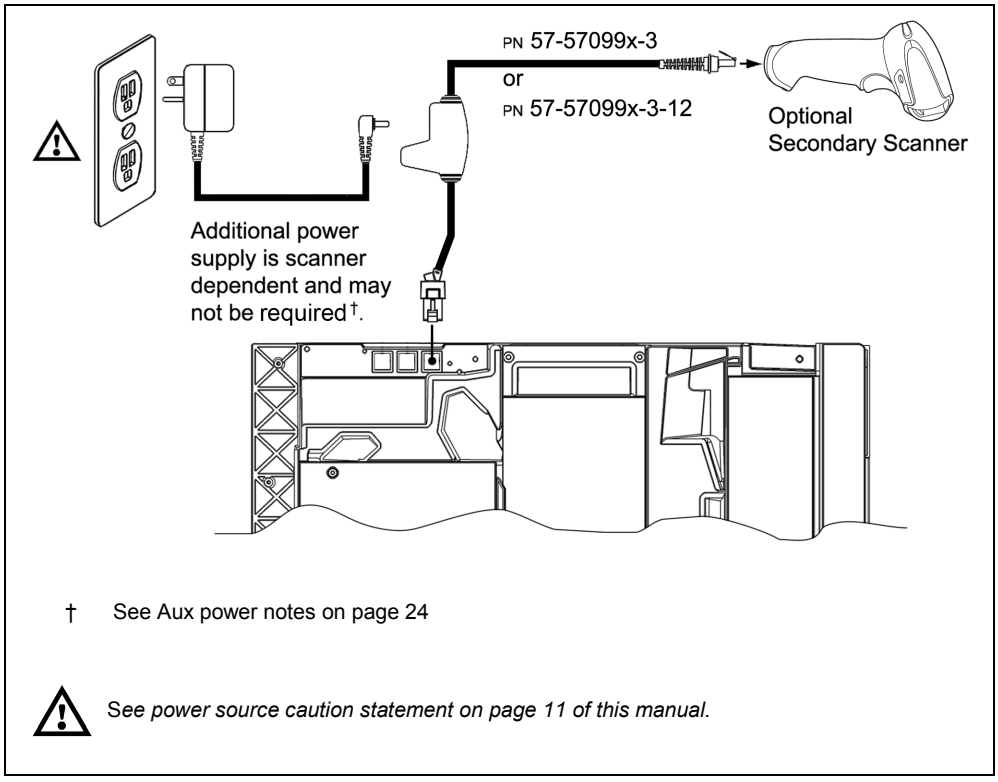


Figure 25. Secondary Scanner Cable Installation Schematic

EAS DEACTIVATION

SW1 and SW2 are the switch banks inside the Checkpoint device that set the deactivation range. The following is a list of Checkpoint recommended switch bank settings.

Base Model	Checkpoint Recommended Switch Bank Settings
MS2321	SW1 & SW2 switches 1 and 6 set to ON
MS2322	SW1 & SW2 switches 1 and 6 set to ON

All Stratos*H* models have a connector labeled ***EAS In*** on the bottom of the unit. Honeywell has an optional EAS cable (PN 52-52511x) available for purchase for connection between the Checkpoint device and the Stratos*H*.

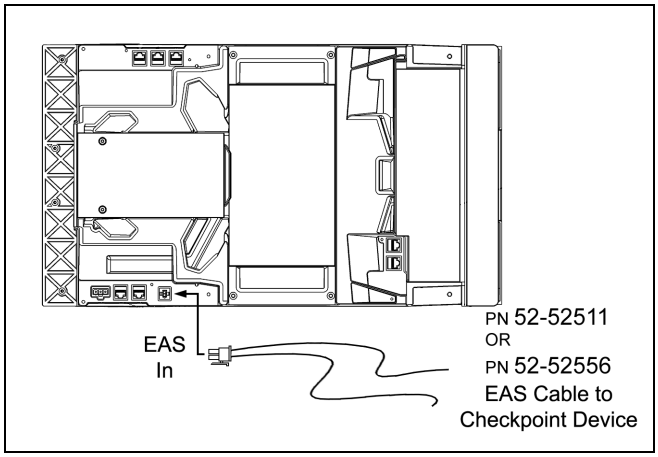


Figure 26. EAS Cable Connection (Bottom of StratosH)

The following figure shows the location of the EAS deactivation area for the Stratos*H*. It is important to pass the entire tag through this area to deactivate the security tag.

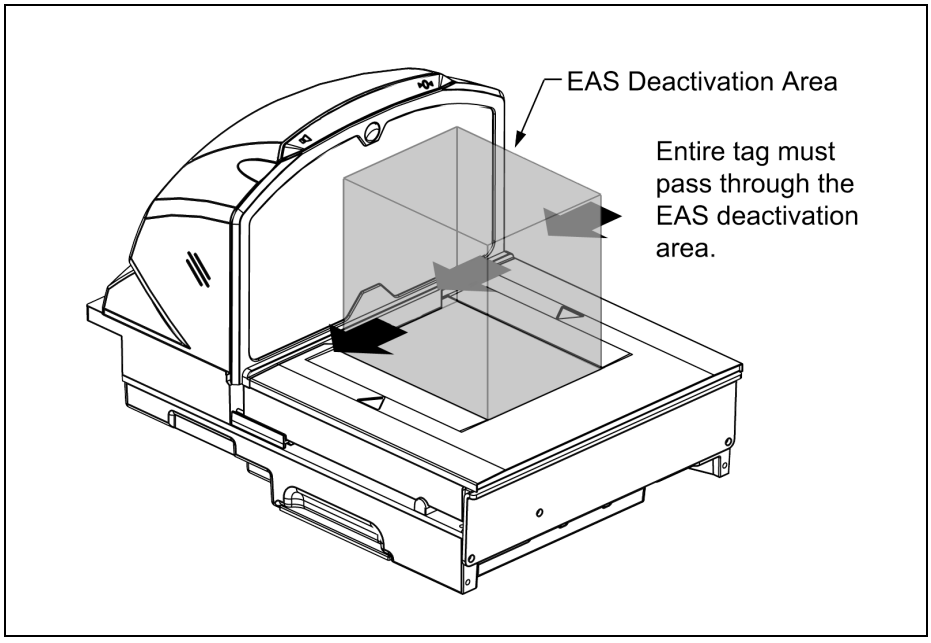


Figure 27. EAS Deactivation Area

SCAN ZONE

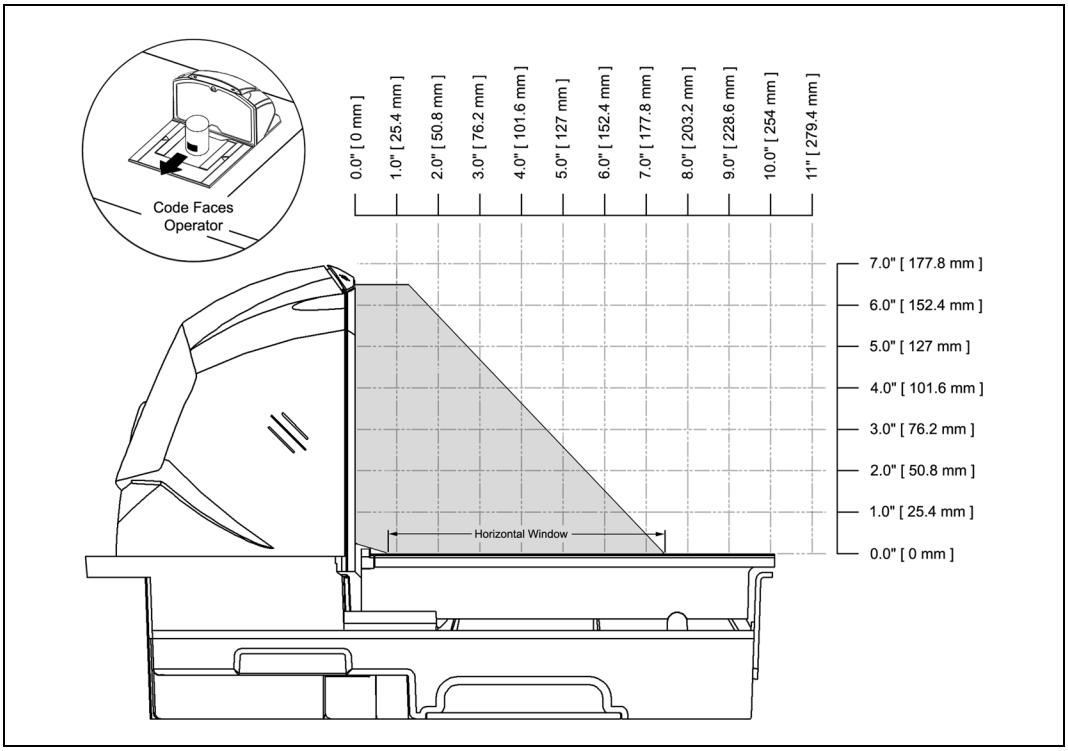


Figure 28. Checker-Side (13 mil)

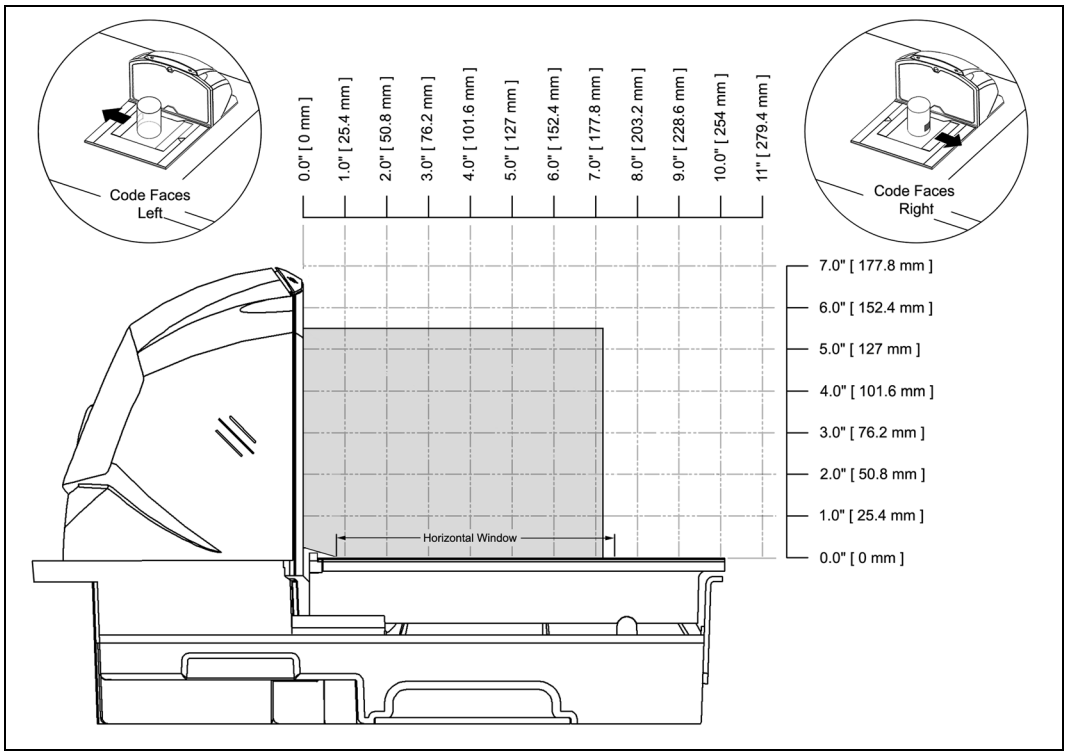


Figure 29. Horizontal Left/Right (13 mil)

Specifications are subject to change without notice.

SCAN ZONE

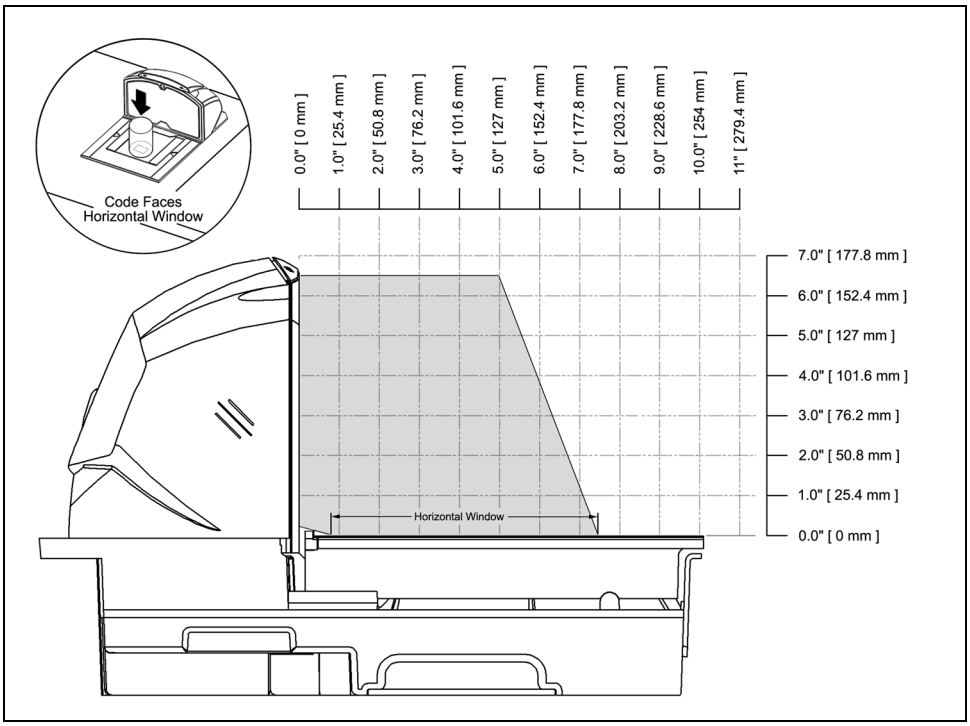


Figure 30. Horizontal Direct (13 mil)

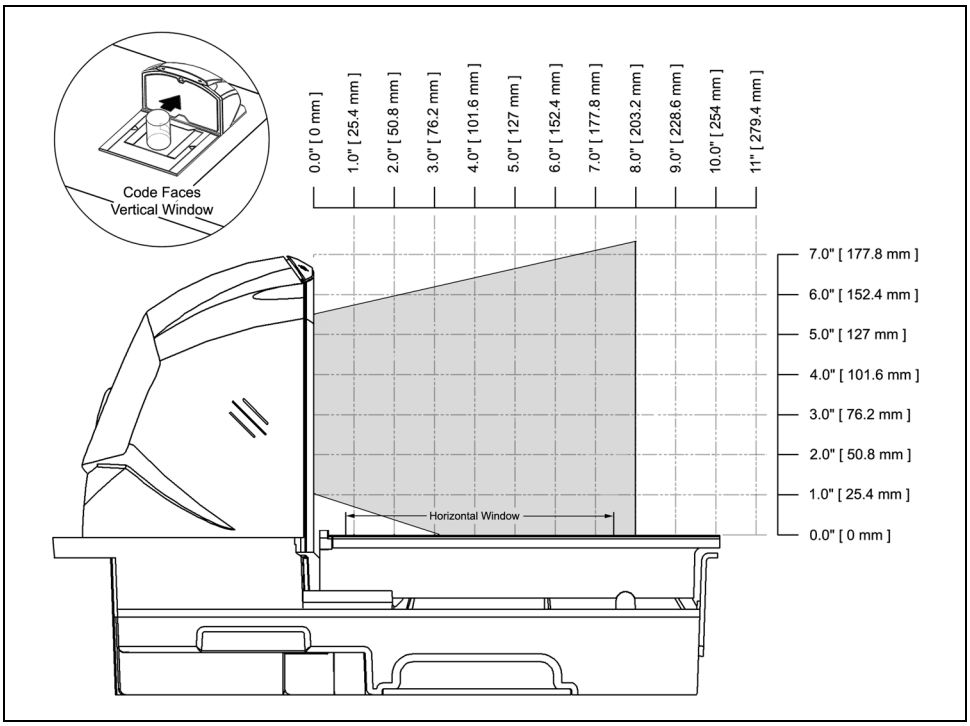


Figure 31. Vertical Direct (13 mil)

Specifications are subject to change without notice.

IR ACTIVATION AREA (IR LED OUTPUT)

The Stratos*H*'s default power save mode† is *Dual Action Power Save Mode #2 (see page 34)*. This power save mode† turns the laser OFF after a configured period of non-use then turns the motor OFF after thirty-minute intervals. Any movement detected by the IR in the activation area, shown below, will cause the scanner to exit the power save mode. The motor will restart automatically and the laser will turn back on preparing the scanner for bar code recognition, decoding and transmission.

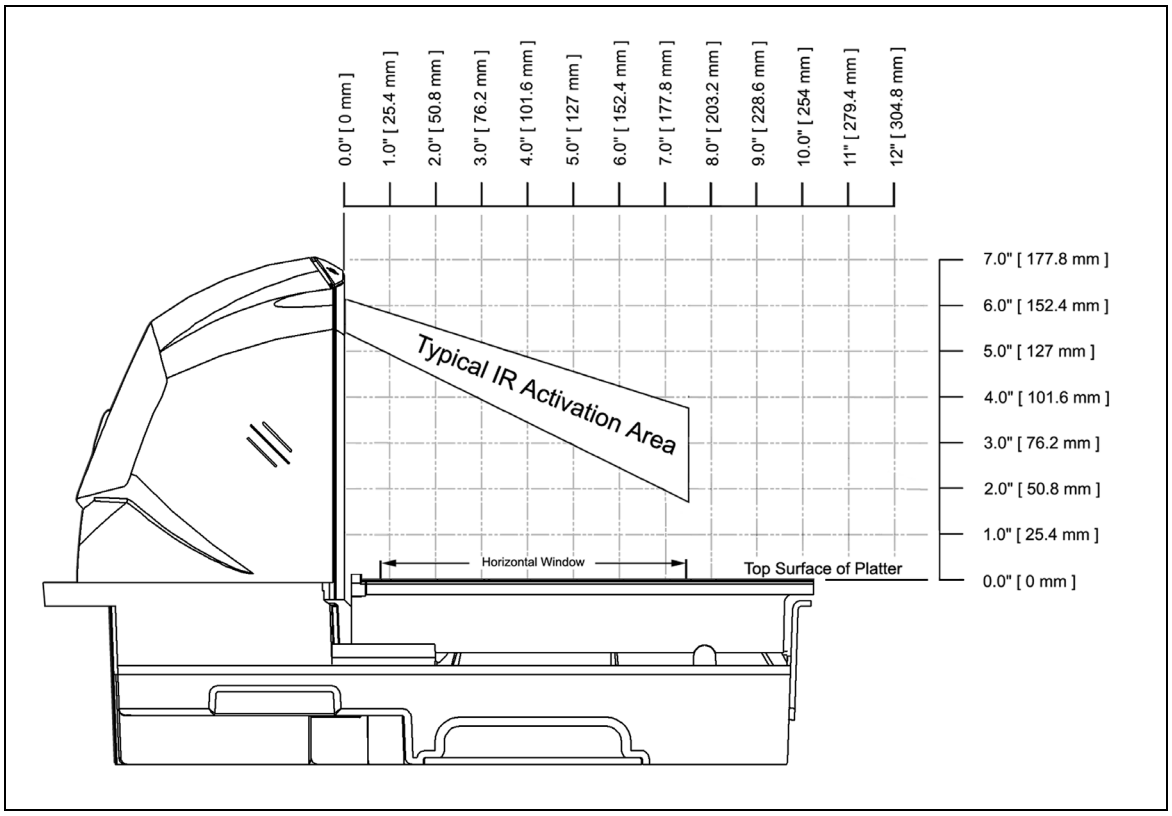


Figure 32. IR Activation Area Perpendicular to Package Flow (IR LED Output)

† *Refer to the MetroSelect Configuration Guide (00-02407) for additional information on configurable power save modes.*

Specifications are subject to change without notice.

INDICATOR DESCRIPTIONS

Audible

When in operation the Stratos*H* provides audible feedback that indicates the status of the unit and the current scan.
Eight settings are available for the tone of the beep (normal, six alternate tones and no tone) plus three volume settings.
To change the tone or volume, refer to the *Changing the Beeper Tone & Volume* section of this manual.

One Beep

When the scanner *first* receives power the white LED will flash, the blue LED will turn on and the scanner will beep once (*the white LED will remain on for the duration of the beep*). The scanner is now ready to scan.

When the scanner *successfully* reads a bar code, the white LED will flash and the scanner beeps once (*if configured to do so*). If the scanner does not beep once and the white light does not flash, then the bar code has *not* been successfully read.

Razzberry Tone

This is a failure indicator. Refer to failure modes on page 31.

Three Beeps - during operation

When placing the scanner in configuration mode, the white LED will flash while the scanner simultaneously beeps three times. The white and blue LEDs will continue to flash until the unit exits configuration mode. Upon exiting configuration mode, the scanner will beep three times and the white LED will stop flashing.

When configured, three beeps can also indicate a communications timeout during normal scanning mode.

When using one-code-configuring, the scanner will beep three times (the current selected tone), followed by a short pause, a high tone and a low tone. This tells the user that the single configuration bar code has *successfully* configured the scanner.

Three Beeps - on power up

This is a failure indicator. Refer to failure modes on page 31.

Visual

White and blue LEDs are located at the top of the vertical output window.
When the scanner is ON, the flashing or constant, illumination of the LEDs indicates the status of the Stratos*H* and the current scan.

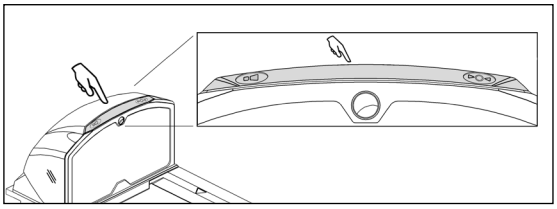


Figure 33. LEDs

No White or Blue LED

The LEDs will not be illuminated if the scanner is not receiving power from the host or transformer.
They are also not illuminated when all lasers are turned off for any reason.

Steady Blue

When all lasers are active, the blue LED is illuminated. The blue LED will remain illuminated until all lasers are deactivated.

Steady Blue and Single White Flash

When the scanner successfully reads a bar code, the white LED will flash and the scanner will beep once. If the white LED does not flash or the scanner does not beep once, then the bar code has not been successfully read.

INDICATOR DESCRIPTIONS

Visual

Steady White and Blue

After a successful scan, the scanner transmits the data to the host device. Some communication modes require that the host inform the scanner when data is ready to be received. If the host is not ready to accept the information, the scanner's white LED will remain on until the data can be transmitted.

Flashing Blue then Flashing White

This indicates the scanner is in configuration mode. A razzberry tone indicates that an invalid bar code has been scanned in this mode.

or

If the unit is in sleep mode, each LED will flash once every 15 seconds.

Steady White, Blue Off

This indicates the scanner may be waiting for communication from the host.

Flashing Blue

This indicates there is an error active on the diagnostic indicator display (see Error Codes on page 32). The scanner may continue to operate depending on the type of error.

Failure Modes

Flashing Blue and One Razzberry Tone

This indicates that the scanner has experienced a laser subsystem failure. The scanner will try up to three times to correct the failure condition. If the laser subsystem continues to fail, that subsystem (horizontal or vertical) will be shut down and an error indication will be shown on the Diagnostic Indicator Display. This error stays on the display until corrected. If the remaining subsystem is still operational, scanning will continue using the operational components.

Flashing Blue and White and Two Razzberry Tones

This indicates that the scanner has experienced a motor subsystem failure. The scanner will try up to three times to correct the failure condition. If the motor subsystem continues to fail, that subsystem (horizontal or vertical) will be shut down and an error indication will be shown on the Diagnostic Indicator Display. This error stays on the display until corrected. If the remaining subsystem is still operational, scanning will continue using the still operational components.

Continuous Razzberry Tone with Both LEDs Off

If, upon power up, the scanner emits a continuous razzberry tone, then the scanner has an electronic failure. Return the unit for repair at an authorized service center.

Three Beeps - On Power Up

If the scanner beeps three times on power up then, the nonvolatile memory that holds the scanner configuration has failed. Return the unit for repair at an authorized service center.

INDICATOR DESCRIPTIONS

Diagnostic Indicator Display

There is a two-digit error code display located under the platter near the end of the scanner farthest from the vertical window (see figure below).

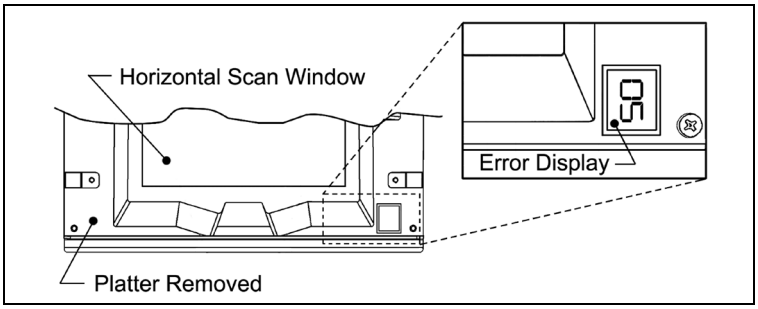


Figure 34. Error Code Display

The following is a list of possible error codes and their meanings. Some errors will require immediate scanner maintenance.

ERROR CODE	DESCRIPTION
01	Reserved
02	RAM ERROR – The scanner's Random Access Memory (RAM) is tested as faulty. Return the unit for repair at an authorized service center.
03	PROGRAM ERROR – The scanner's software program is failing. Return the unit for repair.
04	INTERFACE ERROR – After power up and any application exit (e.g. MetroSet, etc.), the scanner checks the interface hardware with that chosen in configuration. If they do not agree, an interface error exists. Correct this problem by getting the proper hardware interface OR programming Stratos*H* configuration for the proper interface hardware attached.
05	CONFIGURATION ERROR – The non-volatile configuration memory did not agree with the data last saved. Default configuration data is then used and the scanner continues operating. This error is also accompanied by three beeps. This error will remain during operation as a reminder that this power cycle is scanning against a default-generated configuration.
06	COMMUNICATION ERROR – The RS232 data line is being held active. This causes the scanner to read a "break" signal constantly and continuous attempts are made to enter MetroSet configuration mode. A short on the RX Data line can cause this condition. It can also be the result of a laptop in power save mode. The scanner will abort attempts to enter configuration mode after a short timeout. The scanner can automatically recover from this condition once the short in the RX Data line is corrected.
09	COPROCESSOR COMMUNICATION ERROR – The main microprocessor is not communicating with the interface coprocessor. The interface coprocessor may be in a fault condition with the host or just not able to respond. This error may appear when the scanner is configured for USB or RS485 interface applications or during an attempt to update the interface software through the flash utility. The unit should be repaired at an authorized service center.

INDICATOR DESCRIPTIONS

Diagnostic Indicator Display

ERROR CODE	DESCRIPTION
11	SWITCH ERROR – The switch used for volume selection or sleep mode is detected in error (always closed). The condition is self-correcting if possible. If the error persists, return the unit for repair at an authorized service center. The scanning operation can continue with this error active.
21	LASER #1 (VERTICAL) ERROR – The laser in the vertical scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, the vertical scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators.
22	LASER #2 (RIGHT HORIZONTAL) ERROR – The right laser in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, and the left horizontal laser (#3) is also in error, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators.
23	LASER #3 (LEFT HORIZONTAL) ERROR – The left laser in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the laser operation. If the laser error persists, and the right horizontal laser (#2) is also in error, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators.
31	MOTOR #1 (VERTICAL) ERROR – The motor in the vertical scanning subsystem denotes a failure. The scanner will try three times to correct the motor operation. If the motor error persists, the vertical scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators.
32	MOTOR #2 (HORIZONTAL) ERROR – The motor in the horizontal scanning subsystem denotes a failure. The scanner will try three times to correct the motor operation. If the motor error persists, the horizontal scanning subsystem will be shut down and this error code will remain on the Diagnostic Indicators.

POWER SAVE MODES

The Stratos*H* has five configurable power save modes. Refer to the *MetroSelect Configuration Guide (PN 00-02407X)* for additional information on Power Save Modes.

1. **Blink Power Save Mode:**

   Blinks the laser OFF & ON after a configured period of non-use.

   When the scanner recognizes a bar code it will exit the Blink mode.

2. **Laser Off Power Save Mode:**

   Turns the laser OFF after a configured period of non-use. The motor continues to spin allowing for a faster "wake" up time.

   Any movement detected by the IR will "wake" the scanner from the *Laser Off* power save mode (see *Figure 33* on page 29).

3. **Laser & Motor Off Power Save Mode:**

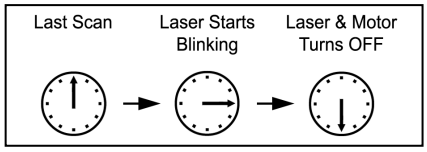
   Turns the laser and motor OFF after a configured period of non-use.

   Any movement detected by the IR will "wake" the scanner from the power save mode (see *Figure 33* on page 29). This mode's "wake" time is slightly longer due to the motor's need to restart.

4. **Dual Action Power Save Mode #1:**

   "Blinks" the laser OFF & ON after a configured period of non-use turns the laser and motor OFF at thirty-minute intervals.

   Example:
   If the power save timeout is set to 15 minutes.

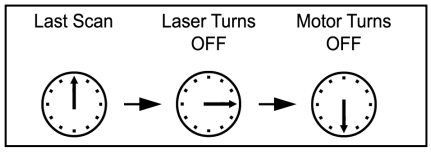


   Any movement detected by the IR will "wake" the scanner from the power save mode (see *Figure 33* on page 29).

5. **Dual Action Power Save Mode #2 (Default):**

   Turns the laser OFF after a configured period of non-use then turns the motor OFF after thirty-minute intervals.

   Example:
   If the power save timeout is set to 15 minutes.



   Any movement detected by the IR will "wake" the scanner from the power save mode (see *Figure 33* on page 29).

BEEPER OPTIONS AND BUTTON FUNCTIONS

Changing the Beeper Tone

Beeper tones may be configured incrementally using the following bar code. The new tone will be heard followed by a short pause. Two more new tones will be heard signifying the new setting has been stored in memory. The silent (no beep) tone is also selectable.

N
³ 9 9 9 9 7 5

Changing the Beeper Volume

Volume levels may be configured using the volume button or incrementally using the following bar code. The new volume will be heard followed by a short pause. Two more tones will be heard signifying the new setting has been saved in memory.
The silent (no volume) tone is also selectable.

N
³ 9 9 9 9 7 4

The Multi-Function Button

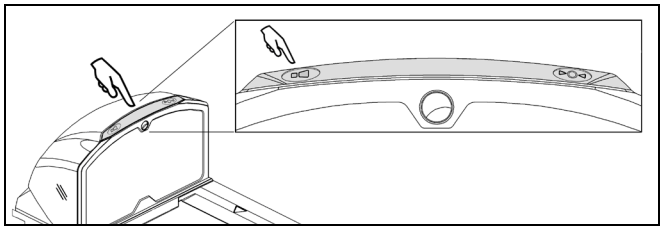


Figure 35. The Multi-Function Volume Button

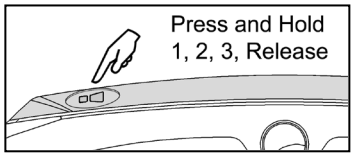


Figure 36. Changing the Beeper Volume

Changing the Beeper Volume

A short (<3 second) depression and the beeper volume will change.
The new volume will be heard. The silent (no beep) volume is also selectable.

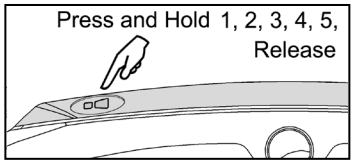


Figure 37. Laser & Motor Off Power Save Move

Placing the Unit in Laser & Motor Off Power Save Mode

Long (>3 seconds) depression The *Laser & Motor Off Power Save Mode* is the only power save mode that can be activated with the multi-function button*.

* *This feature is configuration dependent. Refer to the MetroSelect Configuration Guide (PN 00-02407x) under Scanner Operation: Power Save Modes to enable this feature.*

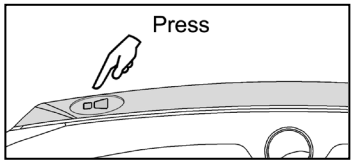


Figure 38. Normal Operation

Waking the Unit from All Power Save Modes

The next button depression will awaken the scanner for normal operation.

STARTUP

When the scanner *first* receives power the white LED will flash, the blue LED will turn on and the scanner will beep once (*the white LED will remain on for the duration of the beep*). The scanner is now ready to scan.

POWER-UP TEST MODE

When a Stratos*H* scanner is first powered up, it cycles through a number of self-tests before starting normal operation. If there are any initial failures during this sequence of tests the scanner will beep or razz to indicate the error and an error code will appear in the diagnostic indicator display.

The following are examples of the types of tests performed at power-up.

1. Memory tests
2. Hardware setup tests
3. Motor tests
4. Laser tests
5. Configuration tests
6. Interface tests

These tests are also performed on a periodic basis with the operator alerted to any failures.

CONFIGURATION MODE

All Stratos*H* series scanners have been configured at the factory with a set of default communication protocols. Since many host systems have unique formats and protocol requirements, Honeywell provides a wide range of configurable features that may be selected with the use of the MetroSelect® Configuration Guide (PN 00-02407x), the MS2xxx Stratos Series Configuration Addendum (PN 00-02034x) and MetroSet.

For a complete list of the factory default settings, refer to the *Default Settings* section of this guide.

PLATTER / HORIZONTAL SCAN WINDOW REPLACEMENT

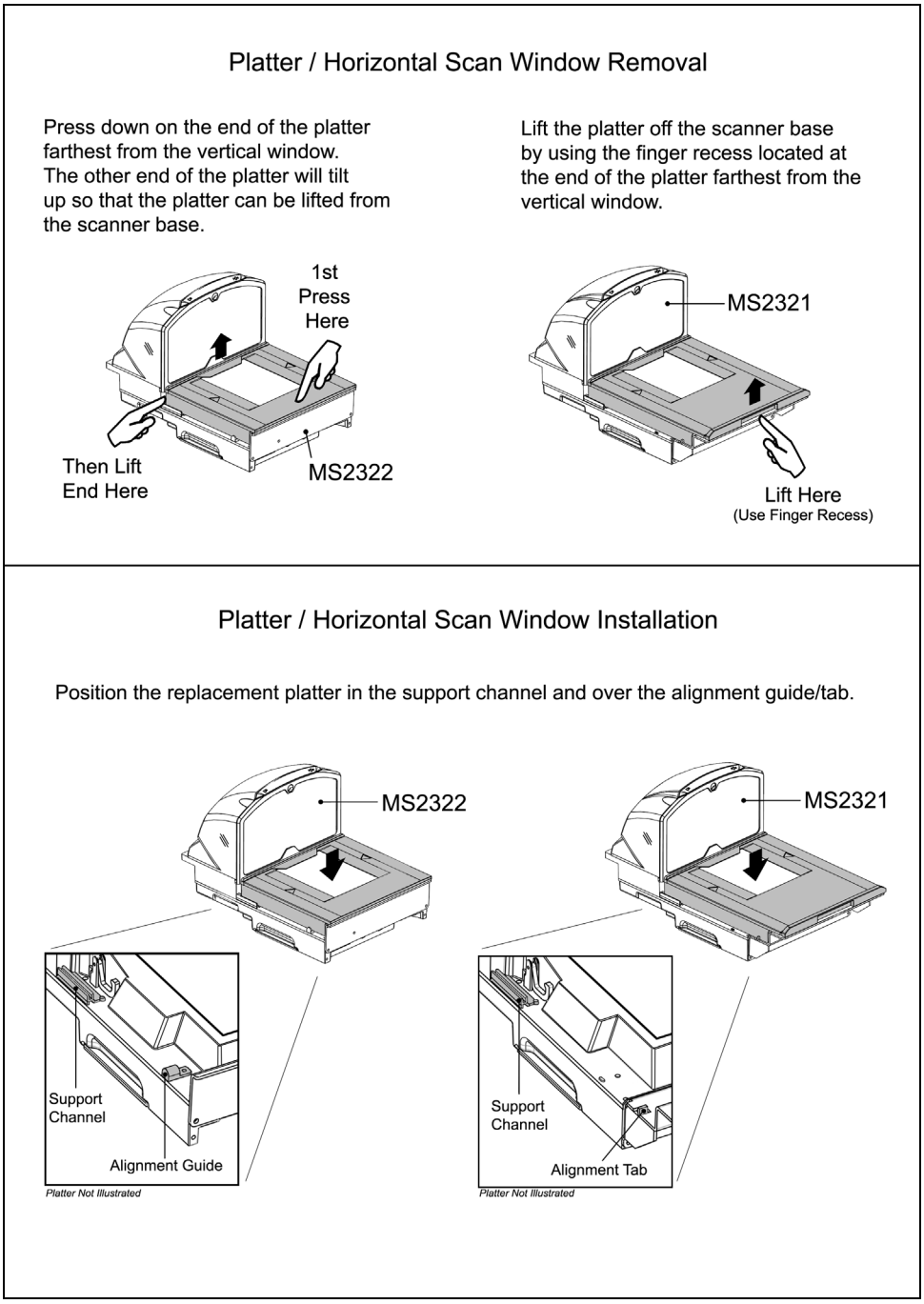

Platter / Horizontal Scan Window Removal
Press down on the end of the platter farthest from the vertical window. The other end of the platter will tilt up so that the platter can be lifted from the scanner base.
1st Press Here
Then Lift End Here
MS2322
Lift the platter off the scanner base by using the finger recess located at the end of the platter farthest from the vertical window.
MS2321
Lift Here
(Use Finger Recess)
Platter / Horizontal Scan Window Installation
Position the replacement platter in the support channel and over the alignment guide/tab.
MS2322
Support Channel
Alignment Guide
Platter Not Illustrated
MS2321
Support Channel
Alignment Tab
Platter Not Illustrated

*Figure 39. Platter/Horizontal Scan Window Replacement**

* *See replacement parts on page 3.*

VERTICAL SCAN WINDOW REPLACEMENT (PN 46-46889)

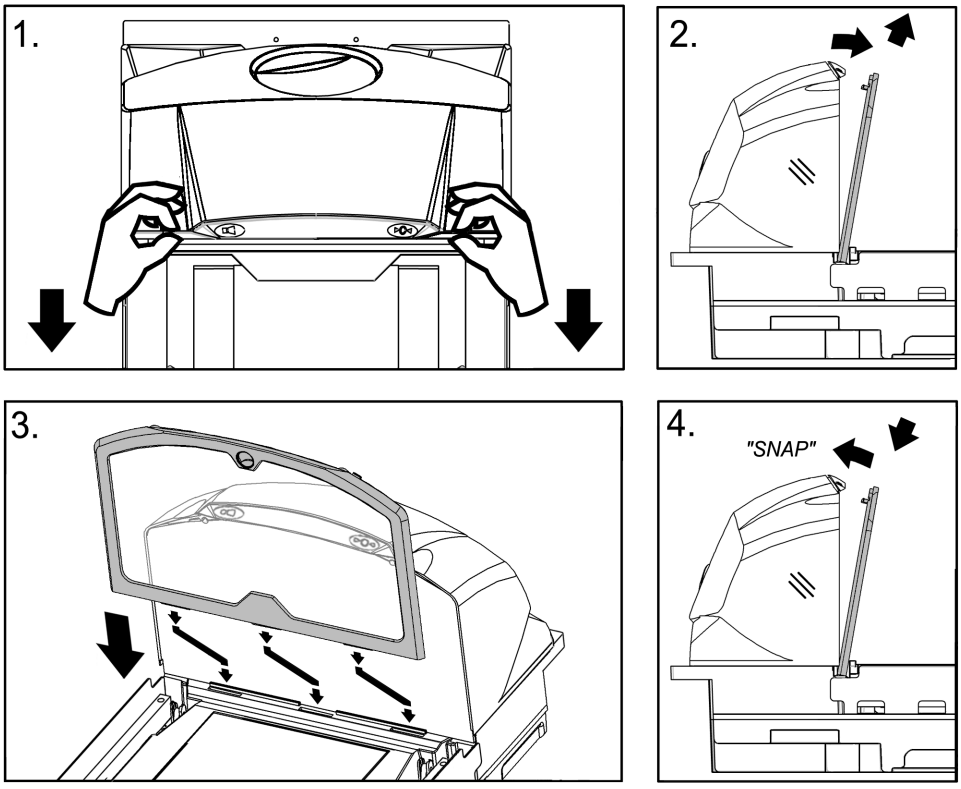


Figure 40. Vertical Scan Window Replacement

DAILY MAINTENANCE

Smudges and dirt can interfere with the proper scanning of a bar code. Therefore, the horizontal and vertical output windows will need occasional cleaning.

For the glass window:

1. Spray glass cleaner onto lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

For the inner plastic window:

1. Use mild soap and water with lint free, non-abrasive cleaning cloth.
2. Gently wipe the scanner window.

TROUBLESHOOTING

The following guide is for reference purposes only. Contact a customer service representative to preserve the limited warranty terms.

Symptom	Possible Cause(s)	Solution
All Interfaces		
No LEDs, beep or motor spin.	No power is being supplied to the scanner.	Check the transformer, outlet and the power strip. Make sure the power cable is plugged into the scanner.
During power up the unit beeps 3 times.	A non-volatile RAM failure.	Contact a customer service representative, if the unit will not hold the configuration.
During power up the unit razzes continuously.	There has been a diagnostic failure.	Contact a customer service representative, if the unit will not function.
During power up the unit razzes once and the blue LED flashes.	A VLD failure.	Contact a customer service representative.
During power up the unit razzes twice and both LEDs flash.	Scanner motor failure.	Contact a customer service representative.
There are multiple scans upon presentation of code.	The *same symbol timeout* is set to short.	Adjust same symbol timeout for a longer time.
The unit powers up but does not beep.	The beeper is disabled.	Enable the beeper.
	No volume is selected.	Select a volume.
	No tone is selected.	Select a tone.
The unit powers up but does not scan and/or beep.	The unit is trying to scan a particular symbology that is not enabled.	UPC/EAN and Code 128 are enabled by default. Verify that the type of bar code being read has been selected.
	The unit has been configured for a character length lock or a minimum length and the bar code being scanned does not satisfy the configured criteria.	Verify that the bar code that is being scanned falls into the criteria. *Typical of Non-UPC/EAN codes. The scanner defaults to a minimum of 4 character bar code.*
The unit scans a bar code, but locks up after the first scan (*the white LED stays on*).	The scanner is configured to support some form of host handshaking but is not receiving the signal.	If the scanner is setup to support ACK/NAK, RTS/CTS, XON/XOFF or D/E, verify that the host cable and host are supporting the handshaking properly.
The unit scans but the data transmitted to the host is incorrect.	The scanner's data format does not match the host system requirements.	Verify that the scanner's data format matches that required by the host. Make sure that the scanner is connected to the proper host port.

Symptom	Possible Cause(s)	Solution
All Interfaces		
Scanner beeps at some bar codes and NOT for others of the same bar code symbology.	Check the character length lock.	Check if it is a check digit, character or border problem.
	The aspect ratio of the bar code is out of tolerance.	
	The bar code may have been printed incorrectly.	
	The scanner is not configured correctly for this type of bar code.	Check if check digits are set properly.
	The minimum symbol length setting does not work with the bar code.	Check if the correct minimum symbol length is set.
RS232 Only		
The unit powers up OK and scans OK but does not communicate properly to the host.	The com port at the host is not working or is not configured properly.	Check to make sure that the baud rate and parity of the scanner and the communication port match and the program is looking for RS232 data.
	The cable is not connected to the proper com port.	
	The com port is not operating properly.	
The host is receiving data but the data does not look correct.	The scanner and host may not be configured for the same interface.	Check that the scanner and the host are configured for the same interface.
Characters are being dropped.	The intercharacter delay needs to be added to the transmitted output.	Add some intercharacter delay to the transmitted output by using the MetroSelect Configuration Guide (PN 00-02407*x*).

Symptom	Possible Cause(s)	Solution
Aux Port Operation With Any Interface		
The secondary scanner is not functioning.		Refer to the user's guide provided with the secondary scanner.
The secondary scanner powers up but data is not relayed to the host.	The secondary scanner cable may not be connected to the proper port on the Stratos*H*.	Ensure that the secondary scanner is connected to the Stratos*H*'s com port marked "Aux" port.
	The auxiliary com port may not be operating properly.	* The Stratos*H* must be configured to enable the auxiliary port.
		The auxiliary input port's data format must match the main output format of the secondary scanner.
* Refer to the MS2xxx Stratos Series Configuration Addendum (PN 00-02034x) under Scanner Configuration Bar Codes: Auxiliary Port, Quick Start for a Secondary Honeywell Scanner.		

SCANNER PINOUT CONNECTIONS

The Stratos*H* scanner terminates to 10-pin modular jacks located on the bottom of the unit. The serial number label indicates the model number and interface of the scanner.

EAS	
Pin	**Function**
1	EAS In
2	EAS Out

DC Power	
Pin	**Function**
1	12VDC
2	Ground
3	5.2VDC

Auxiliary RS232 In	
Pin	**Function**
1	Ground
2	RS232 Receive Input
3	RS232 Transmit Output
4	RS232 RTS In
5	RS232 CTS Out
6-8	*No Connect*
9	+5V Out
10	*No Connect*

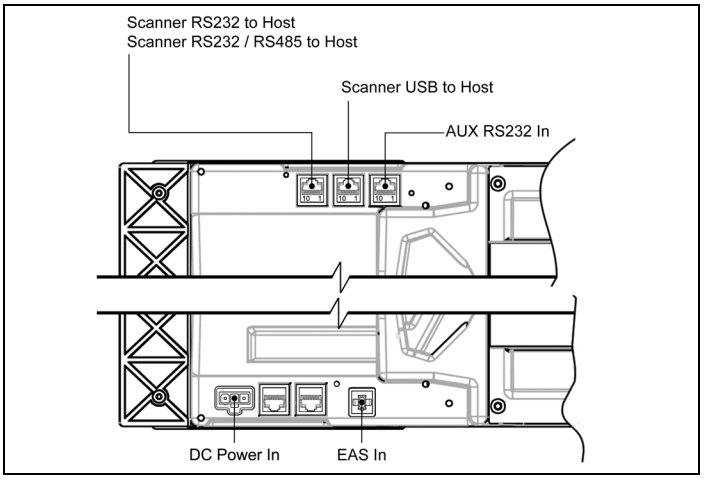


Figure 41. Connector Layout on the Bottom of the Scanner

Scanner to Host, RS485	
Pin	**Function**
1	Signal Ground
2	RS232 TX Output
3	RS232 RX Input
4	*Reserved for RS232 Interface*
5	*Reserved for RS232 Interface*
6	*Reserved for RS232 Interface*
7	IBM B-
8	IBM B+
9	*No Connect*
10	*No Connect*

Scanner to Host, RS232	
Pin	**Function**
1	Signal Ground
2	RS232 TX Output
3	RS232 RX Input
4	RS232 RTS Output
5	RS232 CTS Input
6	RS232 DTR Input
7	*Reserved for RS485 Interface*
8	*Reserved for RS485 Interface*
9	*No Connect*
10	*No Connect*

Scanner to Host, USB	
Pin	**Function**
1	Signal Ground
2	Reserved
3	Reserved
4	Reserved
5	Reserved
6	Data +
7	PC+5VDC
8	Data -
9	*No Connect*
10	Shield Ground

Specifications are subject to change without notice.

SCALE READY MS2321 MODELS – ADDITIONAL PINOUT CONNECTIONS

There are four additional 10-pin modular jacks located on the bottom of the of the MS2321 Stratos*H* models that may be used for an integrated scale application and the use of a remote display. When using the RS232/Full Speed USB/RS485 (-121) interface, the USB and RS485 interfaces are not active at the same time.

Please keep in mind that every application is unique. The use of these connections depends on the specifications of the scale's manufacturer. The following pinouts are for **reference only**. If the scanner has been integrated with a scale, refer to the ***Scale Addendum*** for detailed instructions on the appropriate cable connections, communication specifications and calibration procedures required by the scale manufacturer and local Weights and Measures authorities.

When connecting any combination of scale/external scale display to the M2321 do not exceed the following current restrictions: 12V @ 0.2A max. / 5V @ 0.3A max.

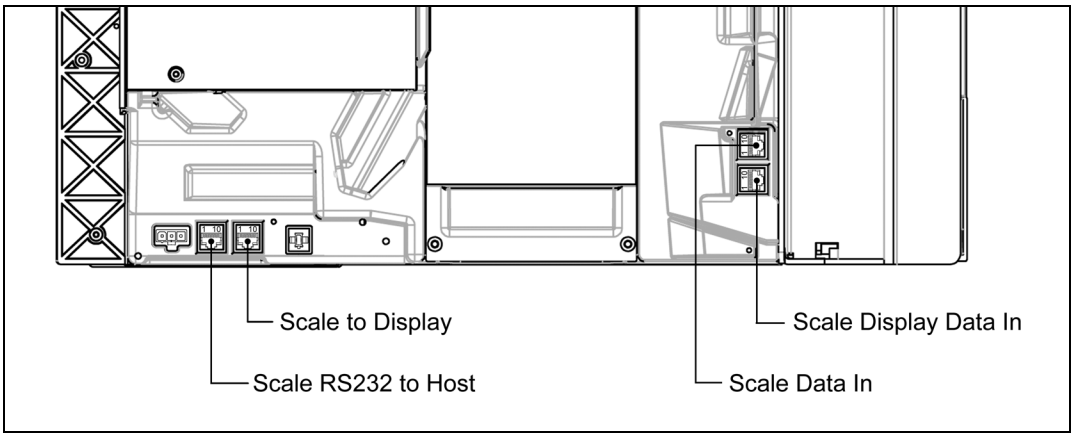


Figure 42. Scale Ready Connector Layout

Scale Display Data In
Scale Data to Display from the Load Cell Interface

Pin	Function**
1	SIG1
2	SIG2
3	SIG3
4	SIG4
5	SIG5
6	SIG6
7	SIG7
8	SIG8
9	*No Connect*
10	*No Connect*

Scale Data In
RS232 from the Load Cell Interface

Pin	Function**
1	12V
2	Ground
3	5V
4	Ground
5	RS232 RX IN
6	RS232 TX Out
7	RS232 CTS IN
8	RS232 RTS Out
9	Scale Status, TTL
10	Scale Zero, TTL

Scale RS232 to Host
Scale Data, Dual Cable Applications

Pin	Function**
1	Ground
2	Scale RS232 TX Out
3	Scale RS232 RX In
4	Scale RS232 RTS Out
5	Scale RS232 CTS In
6	*No Connect*
7	*No Connect*
8	*No Connect*
9	*Reserved*
10	Shield

Scale to Display

Pin	Function**
1	SIG1
2	SIG2
3	SIG3
4	SIG4
5	SIG5
6	SIG6
7	SIG7
8	SIG8
9	*No Connect*
10	*No Connect*

*** All signals referenced from the StratosH scanner.*

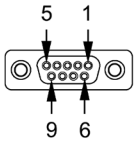
Specifications are subject to change without notice.

CABLE CONNECTOR CONFIGURATIONS

The following cables are examples of some of the standard cables that may be shipped with the Stratos*H* scanner.
Please keep in mind that every application is unique and the cables received with the Stratos*H* may be custom cables that are not shown below.

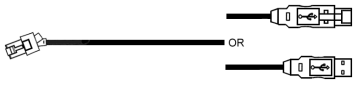
RS232 Interface Cable, PN 57-57000*x*-N-3

Pin	Function**
1	Shield Ground
2	RS232 TX Output
3	RS232 RX Input
4	DTR Input
5	Signal Ground
6	*No Connect*
7	CTS Input
8	RTS Output
9	*No Connect*



9-Pin D-Type Connector

Full Speed USB Cable,
PN 57-57200*x*-N-3 OR PN 57-57006*x*-N-3



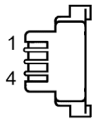
Pin	Function**
1	PC+5V USB
2	Data -
3	Data +
4	Signal Ground

Locking, Type A
57-57200*x*-N-3

Non-Locking, Type A
57-57006*x*-N-3

RS485 Cable, PN 57-57004*x*-N-3

Pin	Function**
1	Signal Ground
2	IBM A+
3	IBM B-
4	*No Connect*

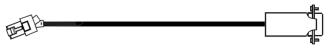


4-Pin SDL

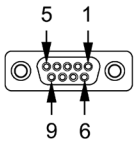
*** All signals referenced from the StratosH scanner.*

Specifications are subject to change without notice.

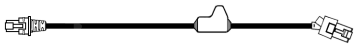
CABLE CONNECTOR CONFIGURATIONS

Aux Port Configuration Cable*, PN 57-57008x-N-3	

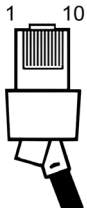
Pin	Function**
1	*No Connect*
2	Output from Scanner
3	Input to Scanner
4	*No Connect*
5	Ground
6-9	*No Connect*



9-Pin D-Type Connector

RS232 LSO/AUX Cable PN 57-57099x -3 or PN 57-57099x -3-12	

Pin	Function†
1	Signal Ground
2	RS232 from Aux / Secondary Scanner
3	RS232 to Aux / Secondary Scanner
4	RTS from Aux / Secondary Scanner
5	CTS to Aux / Secondary Scanner
6-8	*No Connect*
9	+5VDC – Transformer / Direct
10	Shield Ground



10-Position Angled Modular Plug

* *This configuration cable was designed to be used with the StratosH auxiliary connector only.*

*** All signals are referenced from the StratosH scanner.*

† *All signals are referenced from the auxiliary / secondary scanner.*

Specifications are subject to change without notice.

SAFETY

ITE Equipment

IEC 60950-1, EN 60950-1

Laser

Laser Class 1: IEC 60825-1:1993+A1+A2,
EN 60825-1:1994+A1+A2

⚠ Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure. Under no circumstances should the customer attempt to service the laser scanner. Never attempt to look at the laser beam, even if the scanner appears to be nonfunctional. Never open the scanner in an attempt to look into the device. Doing so could result in hazardous laser light exposure. The use of optical instruments with the laser equipment will increase eye hazard.

⚠ Atención

La modificación de los procedimientos, o la utilización de controles o ajustes distintos de los especificados aquí, pueden provocar una luz de láser peligrosa. Bajo ninguna circunstancia el usuario deberá realizar el mantenimiento del láser del escáner. Ni intentar mirar al haz del láser incluso cuando este no esté operativo. Tampoco deberá abrir el escáner para examinar el aparato. El hacerlo puede conllevar una exposición peligrosa a la luz de láser. El uso de instrumentos ópticos con el equipo láser puede incrementar el riesgo para la vista.

⚠ Attention

L'emploi de commandes, réglages ou procédés autres que ceux décrits ici peut entraîner de graves irradiations. Le client ne doit en aucun cas essayer d'entretenir lui-même le scanner ou le laser. Ne regardez jamais directement le rayon laser, même si vous croyez que le scanner est inactif. N'ouvrez jamais le scanner pour regarder dans l'appareil. Ce faisant, vous vous exposez à une rayonnement laser qú êst hazardous. L'emploi d'appareils optiques avec cet équipement laser augmente le risque d'endommagement de la vision.

⚠ Achtung

Die Verwendung anderer als der hier beschriebenen Steuerungen, Einstellungen oder Verfahren kann eine gefährliche Laserstrahlung hervorrufen. Der Kunde sollte unter keinen Umständen versuchen, den Laser-Scanner selbst zu warten. Sehen Sie niemals in den Laserstrahl, selbst wenn Sie glauben, daß der Scanner nicht aktiv ist. Öffnen Sie niemals den Scanner, um in das Gerät hineinzusehen. Wenn Sie dies tun, können Sie sich einer gefährlichen Laserstrahlung aussetzen. Der Einsatz optischer Geräte mit dieser Laserausrüstung erhöht das Risiko einer Sehschädigung.

⚠ Attenzione

L'utilizzo di sistemi di controllo, di regolazioni o di procedimenti diversi da quelli descritti nel presente Manuale può provocare delle esposizioni a raggi laser rischiose. Il cliente non deve assolutamente tentare di riparare egli stesso lo scanner laser. Non guardate mai il raggio laser, anche se credete che lo scanner non sia attivo. Non aprite mai lo scanner per guardare dentro l'apparecchio. Facendolo potete esporVi ad una esposizione laser rischiosa. L'uso di apparecchi ottici, equipaggiati con raggi laser, aumenta il rischio di danni alla vista..

EMC

Emissions
FCC Part 15, ICES-003, CISPR 22, EN 55022

Immunity
CISPR 24, EN 55024

Note: Immunity performance is not guaranteed for scanner cables greater than 3 meters in length when fully extended.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Class A Devices

The following is applicable when the scanner cable is greater in length than 3 meters (9.8 feet) when fully extended:
Les instructions ci-dessous s'appliquent aux cables de scanner dépassant 3 métres (9.8 pieds) de long en extension maximale:
Folgendes trifft zu, wenn das Scannerkabel länger als 3 Meter ist:

This equipment has been tested and found to comply with limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense. Any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice
This Class A digital apparatus complies with Canadian ICES-003.

Remarque
Cet appareil numérique de classe A est conforme à la norme canadienne NMB-003.

European Standard

Warning This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Funkstöreigenschaften nach EN55022:1998

Warnung! Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Massnahmen durchzuführen.

Standard Europeo

Attenzione Questo e' un prodotto di classe A. Se usato in vicinanza di residenze private potrebbe causare interferenze radio che potrebbero richiedere all'utilizzatore opportune misure.

Attention Ce produit est de classe "A". Dans un environnement domestique, ce produit peut être la cause d'interférences radio. Dans ce cas l'utiliseteur peut être amené à predre les mesures adéquates.

EMC

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Class B Devices

The following is applicable when the scanner cable is less than 3 meters (9.8 feet) in length when fully extended:

Les instructions ci-dessous s'appliquent aux cables de scanner ne dépassant pas 3 métres (9.8 pieds) de long en extension maximale:

Folgendes trifft zu, wenn das Scannerkabel kürzer als 3 Meter ist:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Notice
This Class B digital apparatus complies with Canadian ICES-003.

Remarque
Cet appareil numérique de classe B est conforme à la norme canadienne NMB-003.

WEIGHTS & MEASURES

Directive 90/384/EEC, OIML R76, NIST Handbook 44 (NTEP CC#03-056)

LIMITED WARRANTY

Honeywell International Inc. ("HII") warrants its products and optional accessories to be free from defects in materials and workmanship and to conform to HII's published specifications applicable to the products purchased at the time of shipment. This warranty does not cover any HII product which is (i) improperly installed or used; (ii) damaged by accident or negligence, including failure to follow the proper maintenance, service, and cleaning schedule; or (iii) damaged as a result of (A) modification or alteration by the purchaser or other party, (B) excessive voltage or current supplied to or drawn from the interface connections, (C) static electricity or electro-static discharge, (D) operation under conditions beyond the specified operating parameters, or (E) repair or service of the product by anyone other than HII or its authorized representatives.

This warranty shall extend from the time of shipment for the duration published by HII for the product at the time of purchase ("Warranty Period"). Any defective product must be returned (at purchaser's expense) during the Warranty Period to HII factory or authorized service center for inspection. No product will be accepted by HII without a Return Materials Authorization, which may be obtained by contacting HII. In the event that the product is returned to HII or its authorized service center within the Warranty Period and HII determines to its satisfaction that the product is defective due to defects in materials or workmanship, HII, at its sole option, will either repair or replace the product without charge, except for return shipping to HII.

EXCEPT AS MAY BE OTHERWISE PROVIDED BY APPLICABLE LAW, THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER COVENANTS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, ORAL OR WRITTEN, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

HII'S RESPONSIBILITY AND PURCHASER'S EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT WITH NEW OR REFURBISHED PARTS. IN NO EVENT SHALL HII BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, AND, IN NO EVENT, SHALL ANY LIABILITY OF HII ARISING IN CONNECTION WITH ANY PRODUCT SOLD HEREUNDER (WHETHER SUCH LIABILITY ARISES FROM A CLAIM BASED ON CONTRACT, WARRANTY, TORT, OR OTHERWISE) EXCEED THE ACTUAL AMOUNT PAID TO HII FOR THE PRODUCT. THESE LIMITATIONS ON LIABILITY SHALL REMAIN IN FULL FORCE AND EFFECT EVEN WHEN HII MAY HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH INJURIES, LOSSES, OR DAMAGES. SOME STATES, PROVINCES, OR COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

All provisions of this Limited Warranty are separate and severable, which means that if any provision is held invalid and unenforceable, such determination shall not affect the validity of enforceability of the other provisions hereof. Use of any peripherals not provided by the manufacturer may result in damage not covered by this warranty. This includes but is not limited to: cables, power supplies, cradles, and docking stations. HII extends these warranties only to the first end-users of the products. These warranties are non-transferable.

The duration of the limited warranty for the MS2300 is three (3) year(s). The accessories have a 90 day limited warranty from the date of manufacture.

PATENTS

For patent information, please refer to www.honeywellaidc.com/patents.

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TECHNICAL ASSISTANCE

If you need assistance installing or troubleshooting your device, please call your distributor or the nearest technical support office:

North America/Canada

Telephone: (800) 782-4263
E-mail: hsmnasupport@honeywell.com

Latin America

Telephone: (803) 835-8000
Telephone: (800) 782-4263
E-mail: hsmlasupport@honeywell.com

Brazil

Telephone: +55 (21) 3535-9100
Fax: +55 (21) 3535-9105
E-mail: brsuporte@honeywell.com

Mexico

Telephone: 01-800-HONEYWELL (01-800-466-3993)
E-mail: soporte.hsm@honeywell.com

Europe, Middle East, and Africa

Telephone: +31 (0) 40 7999 393
Fax: +31 (0) 40 2425 672
E-mail: hsmeurosupport@honeywell.com

Hong Kong

Telephone: +852-29536436
Fax: +851-2511-3557
E-mail: aptechsupport@honeywell.com

Singapore

Telephone: +65-6842-7155
Fax: +65-6842-7166
E-mail: aptechsupport@honeywell.com

China

Telephone: +86 800 828 2803
Fax: +86-512-6762-2560
E-mail: aptechsupport@honeywell.com

Japan

Telephone: +81-3-6730-7344
Fax: +81-3-6730-7222
E-mail: aptechsupport@honeywell.com

Online Technical Assistance

You can also access technical assistance online at www.honeywellaidc.com.

PRODUCT SERVICE AND REPAIR

Honeywell International Inc. provides service for all its products through service centers throughout the world. To obtain warranty or non-warranty service, contact the appropriate location below to obtain a Return Material Authorization number (RMA #) before returning the product.

North America

Telephone: (800) 782-4263
E-mail: hsmnaservice@honeywell.com

Latin America

Telephone: (803) 835-8000
Telephone: (800) 782-4263
Fax: (239) 263-9689
E-mail: laservice@honeywell.com

Brazil

Telephone: +55 (21) 3535-9100
Fax: +55 (21) 3535-9105
E-mail: brservice@honeywell.com

Mexico

Telephone: 01-800-HONEYWELL (01-800-466-3993)
Fax: +52 (55) 5531-3672
E-mail: mxservice@honeywell.com

Europe, Middle East, and Africa

Telephone: +31 (0) 40 2901 633
Fax: +31 (0) 40 2901 631
E-mail: euroservice@honeywell.com

Hong Kong

Telephone: +852-29536436
Fax: +851-2511-3557
E-mail: apservice@honeywell.com

Singapore

Telephone: +65-6842-7155
Fax: +65-6842-7166
E-mail: apservice@honeywell.com

China

Telephone: +86 800 828 2803
Fax: +86-512-6762-2560
E-mail: apservice@honeywell.com

Japan

Telephone: +81-3-6730-7344
Fax: +81-3-6730-7222
E-mail: apservice@honeywell.com

Online Product Service and Repair Assistance

You can also access product service and repair assistance online at www.honeywellaidc.com.

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9680 Old Bailes Road
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www.honeywellaidc.com

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